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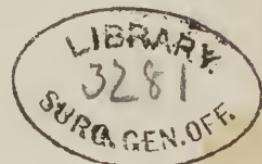
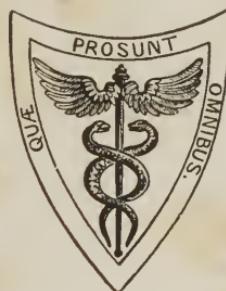
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NOTICE TO THE READER.

THE motives which have led the author to the publication of a portion of his Lectures, have been already set forth in a previous volume, "On The Principal Diseases of the Abdominal and Thoracic Viscera." Prompted by the same considerations, he has been induced to continue the work. That this, like the preceding volume, comes forth with one disadvantage, he is aware. As a fragment of a course of lectures, it is deprived of numerous facts or discussions, theoretical or practical, illustrative or exegetical, distributed under other heads, which could not have been displaced and concentrated in it, without a rude violation of the integrity of the plan, and injustice to the entire undertaking. Nevertheless, he trusts that the work does not suffer materially in this respect—and, at all events, that, whatever the defect may be to others, it cannot be felt by his class, by whom the whole course is heard.

Philadelphia, October, 1844.

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Robert D. Abbott

1850

EXANTHEMATOUS FEVERS.

My attention is now to be directed to a set of cutaneous affections, denominated exanthemata. This is a bad title, as some of them are attended by a pustular eruption, and not an efflorescence or rash, as the term imports. To many of the febrile diseases, an eruption is a constant incident. But such as I have at present in view, are strongly marked by several peculiarities. They originate in a specific contagion,—the consequent fever runs a definite course, productive of a similar virulent eruption, and destroys, with few exceptions, the susceptibility of the system to a repetition of attack.

VARIOLA, OR SMALL-POX.

This is a disease of modern times. No account of it is to be met with in the writings of Greece or Rome, which have descended to us. Endeavours have been made by Willan and others, to trace it to antiquity. But elaborate and recondite as were their researches, they have not produced any satisfactory evidence of its existence, and the fact, as stated, is now sufficiently conceded. forcibly has it been urged by Sydenham, Mead and Friend, that, since Hippocrates, and, especially, Celsus and Galen, are silent in regard to it, the works of the two latter being a sort of digest of the knowledge of their predecessors, we are entitled to this conclusion,—and the more so, from the precision of their histories of diseases,—that no such had occurred, or with which they were acquainted.

The earliest notice of it is by the Arabian writers. An old manuscript, in the library at Leyden, dated 572, declares that, "in this year, small-pox and measles made their appearance in Arabia." It seems, however, that several years before, it broke

out at the memorable siege of Mecca, where it raged with great violence in the Christian army, leading to its total discomfiture. This event happened, according to Gibbon, the historian, two months prior to the birth of Mahomet, which was in 569. Nevertheless, it is true, that Procopius, in his historical writings, of an earlier date by twenty years, describes an epidemic, with so many of the features of small-pox, it is difficult to resist the conviction of its having been really that disease. Beginning at Pilasium, in Egypt, in 544, it spread to Constantinople, everywhere proving the severest scourge, and, what is very characteristic, there was an exemption from any repetition of attacks. As given, however, by this writer, who had no medical knowledge, the account is defective in technical precision, and I suspect has seldom been regarded as adequate authority in the controversies on this subject.

To Rhazes, who lived at the commencement of the tenth century, we are indebted for the first full and accurate description of small-pox. He states that it passed out of Ethiopia into Arabia. To the writings of his predecessors, long since lost, by whom it had been previously noticed, he, however, refers, and especially to those of Ahron, a physician of Alexandria, in Egypt. The latter resided in that city, in 641, when attacked by the Arabians under Omar, the successor of Mahomet, and it is not improbable, the disease was conveyed to it by the invading army, and in this way he became conversant with it. This was seventy-nine years after the siege of Mecca, on which occasion, so far as ascertained, small-pox, as I have said, sprung into being.

By some, however, it is supposed, that it originated in China, or the remoter India, or that, at least, it was known in these regions for centuries anterior to the period I have mentioned. But medical writings not existing, or to which access can be had, among these people, this opinion, not resting on authentic records, is a mere deduction from their mythology, religious institutions, some allusions in their civil history, their traditions, and other sources equally vague and distrustful.

Considering, however, the intimate connection of the Arabians with the East, they might have derived it from that quarter of the world. Be this as it may, we have the most satisfactory proof of its introduction and diffusion through Spain, Sicily and the Levant, by the Saracens, when they, in the eighth century,

overran these countries. But though it had thus gained a partial admission into Europe, it did not generally, till the close of the eleventh or the beginning of the twelfth century, when the crusaders were engaged in the Holy Wars.

Contracting the contagion in Palestine, these bold and enthusiastic adventurers introduced it, on their return, into their native places. The intercourse of the nations of Europe with each other, becoming greatly extended by commerce, about this time, it spread rapidly throughout Christendom, and, for several hundred years, its ravages were terrible. Nor were these, subsequently, in our own hemisphere less extensive, in proportion to the number of subjects. Conveyed to it by the successors of Columbus, the tale of the misery and desolation it inflicted is painful to peruse. Twenty-five years after the discovery of this continent it occurred, and we are told, that it destroyed more than a moiety of the population of the provinces into which it penetrated. Three millions and a half are computed to have fallen victims to it, in a very short time, in the kingdom of Mexico alone.*

Brought, afterwards, by emigrants from Europe to our immediate land, it swept off, also, several tribes of the aborigines, leaving scarcely a sufficiency of them to preserve their names. Gradually it reached other and obscurer regions, owing to the enterprises of discovery and exploration, or to the slower encroachments of civilization, till very few portions of the globe, perhaps, can now claim an exemption from it. There is, indeed, only a single exception to the universality of its pervasion, of which I am aware. "No case of small-pox, measles, or whooping cough, has been met with in New South Wales,"† which is the more remarkable, from the freedom of communication with that colony.

Not having existed in the classic ages, there could be no term for it in the Greek or Latin languages. But, as some designation was required for the disease, *variola* was coined out of the Latin word *varius*, signifying spotted or speckled, or *varus*, a pimple, or as some conjecture, from *virus* or *virulentus*, poisonous or malignant. The latter derivation has some support from the Spanish

* Robertson's History of America.

† Evidence before the Committee of Emigration of the British House of Commons.

appellation of the disease *viruelas*, and the more so, as the whole of the titles of the exanthematous fevers were originally conferred by the school of Cordova, where the teaching of medicine was first instituted in modern Europe. The vernacular term is said to come from the Saxon *pocca*, a pock or pouch, and the epithet *small, variola minuta*, was afterwards adopted to distinguish it from syphilis, when it appeared, then vulgarly called great pox.

The first case on record of variola, by this name, is that of Elfrida, daughter of Alfred, of England, and wife of Baldwin the Bold, Earl of Flanders—and the next, that of her grandson, Baldwin. The one occurred in 907, and the other in 961. These cases are interesting, as showing that the disease had crept into the west of Europe at an earlier date than is generally stated. Nor, probably, were they the only instances of it. Destitute of medical writers at the time, there was no regular history of the disease, and it is presumable that these two cases were singled out by the monkish annalist, who relates them, as notable events, from the superior rank of the personages in whom they happened.

The variolous disease is usually divided into two species or varieties, according to the appearance of the eruption—the *distinct* or *discrete*, and *confluent*, or, when the pustules are separate, or with intervening spaces between them, and when they run into each other and coalesce, so as to form nearly an undistinguishable mass. But this is an arbitrary division, it often happening that, while the eruption is distinct in one, it may be confluent in other portions of the body. Frequently does this occur in relation to the lower extremities and face particularly. I have seen cases with scarcely a pustule on the former, and on the latter one unbroken series. Wrong is it, also, to characterize a disease by a single incident, however prominent it may be, and the more so when it is fluctuating, and liable to diverse modifications. Besides which, the distinction is founded on an external appearance, having, comparatively, little connection with the real pathology of the disease. As variola is attended by fever, or a general condition actively inflammatory or passively congestive, it seems to me it were better to treat of it, at least as concerns practical advantages, in conformity with these views—and hence I shall adopt such an arrangement.

Nothing very peculiar is discernible in the introductory symptoms of the first or inflammatory small-pox. Like pyrexia,

generally, it commences with languor, weariness, aches in the head, back and lower extremities, chilliness, alternated by flushes of heat, thirst, nausea or vomiting, praecordial or epigastric uneasiness, and some rigidity, or soreness of throat. Fever being developed, the pulse becomes full and vigorous, the skin warm, the face turgid, the eyes slightly injected, the respiration hurried, the tongue white, or sometimes red at the point or edges, the stomach still irritated, and betraying tenderness on pressure, the bowels costive, and the urine scanty and high coloured. The irritation extending to the lungs or appendages, these betray the implication, by acute or dull pain in some part of the chest, and by more or less embarrassment of breathing, according as the pulmonary substance or tissues, or the trachea, or its terminations, may be concerned.

Continuing pretty much in this way, till towards the third day, some exacerbation of the febrile state is manifested, and now confusion of mind or even delirium may occur, or there is heavy somnolency only. The epigastrium is exceedingly tender, the vomiting more violent, the tongue very florid, the hands and feet cold, while the surface, generally, is hotter, emitting a peculiar and offensive odour. Nor is the pulmonary disturbance less heightened, by an increase of the catarrhal, laryngitic, bronchitic, pleuritic, or pneumonic affections. During this period, hæmorrhage from the nose is apt to occur in adults, and convulsions in children, in whom this further peculiarity may be remarked, that they perspire less, and have not, in an equal degree, the smell to which I have alluded. An exasperation of symptoms is usually the immediate precursor of the eruption.

Breaking out, as minute red elevated specks, about the end of the third day, first on the face, particularly on the forehead, nose, chin and around the mouth, then on the neck and wrists, the eruption extends over other parts of the body, the chest, abdomen, and back,—lastly, on the lower extremities, and is completed in forty-eight hours. Much more numerous are the pustules on the face than elsewhere: perhaps, one-third or fourth part of the whole crop is crowded within this small space. They are largest on the hands and feet. It is said that the pustules sometimes “undergo a grouped or crescentic arrangement,” which I have not observed. From the commencement of the eruption, the fever

abates, and with its completion, where the attack is moderate, entirely subsides.

These red specks, at the close of the second day, become a little more elevated,—having a slight central depression, and an inflamed base. Towards the fourth day, they receive a further change. Now may be perceived in them, a small portion of limpid fluid,—thence they enlarge and become conspicuously umbilicated. An inflamed circular margin or areola, of a rose or damask colour, surrounds each, which, the eruption being considerable, spreads and approaches each other, occasioning some increase of tumefaction, especially of the face and eyelids. By the seventh or eighth day, the vesicles having further augmented in size, they assume a more spheroidal shape, and begin to fill with purulent matter. This filling proceeds from the circumference to the centre. It is supposed, though not satisfactorily, that the vesicle is thus gradually converted into a pustule by the absorption of the pellucid fluid, and the secretion of pus in place of it, or by the former being changed into the latter. This suppurative process continues for three or four days, the pustules growing still larger, fuller, more yellow and opaque, till they attain maturity, which is generally on the eleventh day, and from distension, lose their central depression, or at least the largest of them undergo this change. Negroes, it is remarked, have never the eruption so prominently developed. The pustules are smaller, flatter, and contain less fluid, which may be referred to the thickness and density of their cuticle, binding more firmly down the cutis vera.

Now, at this maturative stage, the secondary fever, as it is called,—the antecedent being termed the primary fever,—arises, owing to the irritation of the skin, which subsides with the cause of it. Concomitantly with this, is an aggravation of the soreness of throat, and difficulty of swallowing the saliva and fluids of the fauces, which become very viscid, creating a constant scriatus, or hawking, or a copious salivation ensues, in grown persons, or diarrhoea in children, and in both the voice is hoarse, with other evidence of laryngeal irritation.

Little alteration immediately takes place in the eruption, and, sometimes, it remains stationary for several days. Commonly, however, a dark spot is soon discernible in the centre of the pustules, when, in vulgar parlance, the eruption is said to begin

to turn, and, with this appearance, they progressively shrink and dry away, till scabs are formed, which, falling off, leave a red or purplish surface, that slowly disappears, or pits, or scars, or seams, which permanently endure. In the decline of this state of things, the same order is observed as in the rise and progress of the eruption, first decaying on the face, and so, successively, as it appeared.

Conformably to the preceding account, the career of this disease is distinguished by four different stages. The invasive, lasting three days,—the eruptive, two days,—the maturative, six days,—and the declinative or scabbing, four or five days, with, however, various deviations, in each respect, the whole process being seldom over in less than a fortnight, and may continue much longer.

When distinct and benignant, such is the usual character of inflammatory small-pox. But it is subject to great varieties in many other of its features, and which are made the basis of numerous species. My limits are too narrowed to notice, in detail, these diversities. The form and contents of the pustules are sometimes widely different, and hence the distinctions of vesicular, vesiculo-pustular, crystalline, watery, siliquose, varicose, horny pocks, &c. &c. By no means certain, is it, however, that such are varieties of real small-pox. They may, I think, with greater propriety, be referred to the class of varioloids.

To these may be added other peculiarities—the first, where one or more pocks are included in another larger pock, or vesicle,—the second in which fresh pocks are formed on the tops of those—previously existing,—and a third, when there is only an efflorescence. These several varieties, sometimes prevail pretty generally, though oftener individually, here and there, a case presenting itself as a mere anomaly.

The disease being of an extremely typhoid, congestive or adynamic nature, it may be ushered in with the manifestations of collapse, cold skin, pale and sunken countenance, great anxiety and oppression, and a very feeble circulation. Death here, in some instances, abruptly takes place, with very slight or scarcely any reaction, the system sinking, as it were, under the pressure of a morbid influence, from which it cannot be extricated either by the resources of nature or of art.

More frequently, however, the invasion is indicated by languor

and listlessness, dejection of spirits, heavy sighing, muscular soreness and severe pain in the back and lower extremities, alternations of chilliness and flushes, great praecordial distress, and disorder of stomach. This state, usually protracted, is slowly succeeded by the development of fever, with a small, weak, quick pulse, unequal distribution of temperature, the head and trunk being extremely hot, amounting to even the calor mor-dax, while the extremities are cool, the perspiration scanty, or the reverse, copious, and of a cadaverous odour. As the disease proceeds, it is marked by a disclosure of cerebral and nervous disturbance, giddiness, disposition to syncope, heaviness or absolute coma, subsultus tendinum, sometimes convulsions, free discharges of pellucid urine, or total suppression of the secretion of it, and watery diarrhoea, particularly if there be not vomiting.

The state of the epigastrium is not uniform, sometimes exquisitely tender on pressure, and is often otherwise, owing to the extinguishment of organic sensibility. Nor is that of the tongue, which is florid, and apparently raw, or becomes heavily encrusted with dark sordes.

The eruption may show itself earlier, by a day or two, than the ordinary period,—while, in other instances, it is more delayed, even to the fifth or sixth day, sometimes partially appears, and recedes, producing the most deadly sickness, syncope, or stupor and convulsions. Taking place, however, the face is covered with small papular specks, which run into each other, forming a red, tumefied rugous surface.

But, on some occasions, the primary appearance is that of an erysipelatous rash, or efflorescence. Trivial or no remission of fever is discernible on the occurrence of the eruption in any of its shapes, and very often it is exasperated.

Great irregularity prevails in the further progress of the case. The eruption tardily advances, or reversely, very rapidly, so that the entire superficies is almost simultaneously covered. It may happen, that the natural powers stop at this point,—no further effort is made towards pustulation, and the eruption becomes livid, or the whole recedes. But where it is otherwise, the pimples slowly enlarge, and fill with a thin, gleety, or darkish fluid, and rarely with yellow, consistent, purulent matter. These imperfect vesicles, instead of assuming a definite figure, with a flattened surface and central indentation, are of every shape,

sometimes conoid, or the reverse, sunken, with ragged edges, coalescent, or, if there be intervening spaces, they are very pallid, or, as may be, dark from livid petechiæ, vibices, or ecchymosis. Nearly every portion of surface is, at this time, more or less swollen,—the face, the eyelids, the latter particularly,—so as to be closed,—and the hands and feet, successively, in scarcely a less degree. Tenderness or soreness of the skin is complained of, and the itching is most harassing. No remonstrance can induce a forbearance from rubbing or scratching, and the eruption is terribly lacerated in some instances. The pustules having reached maturity, become blended, forming one mass, or, in some parts, no separation can be discerned between them, constituting the confluent disease, which, though it may occur in the inflammatory, is much more incident to this form of it. Excessive exhaustion not existing, an increase with the secondary fever of all the affections takes place.

To an aggravation of sore throat and difficulty of swallowing, are added obstruction of the larynx or bronchi, and much pulmonary and cerebral disorder, from heavy venous congestions of, or effusions into these organs. Cases of extraordinary malignity are, moreover, marked, as previously mentioned, by petechiæ, vibices, colliquative hæmorrhages, especially bloody urine, with copious diarrhœa, and the pustules, finally bursting, the matter escaping, hardens into brown crusts, which very slowly fall off should life be preserved.

Of the malignant, there are as many varieties as of the more benignant disease, among which, may be enumerated, the erysipelatous, the morbillous, the miliary, sanguineous, and gangrenous or putrid, so called from the exhibition of such appearances, instead of those of the ordinary eruption.

By some it is affirmed that, during the epidemic prevalence of small-pox especially, there is often the coincidence of a fever, having all the characteristics of that disease, save the cutaneous affection. This is the *variolous* fever of Sydenham and the *variolæ sine variolis* of De Haen, and more modern writers. Exactly such an occurrence, I have not witnessed. But the dominant influence of these epidemics over other diseases has been remarked by me, and confessedly where individuals, however protected, are exposed to the concentrated contagion, as in nursing the sick, it is not uncommon for them to incur fever of a

variolous aspect. That the disease too, often aborts, ending fatally in the inchoative stage, is sufficiently known. But something very different from either of these cases, is meant in the form of disease we are now contemplating, by those who have described it. They evidently deem it to be a species of variolous affection, which, owing to some modifying circumstances, not ascertained, passes away without involving the skin in the usual manner. The hypothesis has some support in analogy. We see the same thing in relation to scarlatina, it existing independently of any exantheme, and have the stronger illustration of variolation, where the small-pox virus becomes so changed in its operation, by the mode of application, as sometimes to produce little or no eruption.

Not inconceivable is it, that there may be some unknown causes having the same effect, in a still higher degree.

The preceding description of small-pox, is merely a sketch, sufficient only to a general comprehension of the disease in its average presentations. To delineate it in its infinite modifications, with all their details, or such, at least, as have been represented, would require a most elaborate work.

From the historical evidence I have presented, it results that the disease, probably, was developed at the siege of Mecca, for the first time, though under what peculiar circumstances generated, we have no real information. Conformably to the superstitious spirit of that dark age, there is a miraculous account of its origin, almost too ridiculous to be repeated. The infidels tell us, that, at the moment of their greatest distress, a flock of birds came to their succour, with faces like lions, holding in each claw a small stone of the size of a pea, which, being let fall on the Christian army, occasioned an eruption, by which the whole of it was destroyed,—while the latter, not to be outdone, ascribed the calamitous event to an impious stratagem of the Devil himself.

An old tradition refers its derivation to the cainel, and I shall, hereafter, mention some facts calculated to show that it may have pre-existed in horned cattle. Its epizootic origin is, on the whole, I think, deemed the most probable conjecture on the subject, though strong objections may be urged against it.

That variola now arises from a specific contagion, whatever may have been the cause of its primary development, cannot be doubted. As certain is it that the virus may exist in the form of

palpable matter, or as a subtle emanation, the one operating by contact, the other through the medium of the atmosphere. Not so well determined is the distance to which this effluvium may be conveyed. That it might be wafted by the winds, and infect within a great, though indefinite space, was once believed. Of late a different impression is entertained, and the sphere of its influence in the open air is circumscribed to ten or twelve feet. The experiments of Haygarth, confirmed by those of Ryan, Professor at Lyons, render the point tolerably clear. Not improbable, however, does it seem, that the contagious principle is connected with the peculiar odour in the disease, and as far as this may be smelt, is the danger of infection. Common people believe it to be so, and, perhaps, on adequate grounds.

Whether the contagion can be conveyed by fomites, has been lately questioned, at which I am surprised, having thought the affirmative evidence very satisfactory. Medical men, engaged in the practice of inoculation, and attending patients in all stages of small-pox, not conveying the disease, though adopting no precautions against it by a change of clothes or otherwise, is the fact mainly relied on, which, surely, is inconclusive. More time than such transient visits afford, may be required for the impregnation. The true test would be an exposure to the apparel or bedding of the patient. Facts prove that it may be imparted from the dead body, among which Mr. Cæsar Hawkins, of London, states that a subject was brought into his dissecting room covered with small-pox, which gave the disease to four of his class, and much evidence might be adduced of the enduring tenacity of the contagion, even to the walls of a room in which the patient had laid weeks or months before. Every precaution, I think, should be adopted, under such circumstances, to prevent infection, by the destruction or purification of all articles likely to serve as fomites, and by the freest and persistent ventilation.

Curious is it, that the contagiousness of the disease should so long have escaped detection. No allusion to such a property in it can be traced, till after the time of Sydenham. That close observer, himself unsuspecting of contagion, refers the production of the disease to a peculiar constitution of the season. Boerhaave, however, soon afterwards announced the fact, which has never since been disputed.

We know not exactly at what period of the disease this

property is acquired—some of the authorities, and particularly Heberden and Haygarth, among the very highest of them, maintaining that it is not, for days after the appearance of the exanthem, or indeed till its maturation. By others, it is alleged that it occurs as early as the preliminary fever, and that the poisonous effluvia escape both from the lungs and the skin. These latter views, however, are without confirmation. As we know that the contagious principle is secreted by the eruption, and have no evidence of its being derived from any other source, it follows that it cannot exist prior to the formation, and, perhaps, the maturity of the cutaneous affection, though, as in the vaccine, it may possibly be eliminated by the vesicle as well as the pustule. Nor is it less evident, that, since the lungs are destitute of the eruption, they do not concur in the generation or emission of the contagious halitus.

The latent or incubative period of the virus is fourteen days, which, according to my experience, is observed with much regularity. Fordyce, who paid great attention to it, agrees with me on this point, and such, I think, was the common opinion of our practitioners when the disease prevailed widely among us. The late Professor Rutherford, of Edinburgh, was in the habit of saying that, on one occasion, he knew a number of soldiers, accidentally exposed to the contagion, in whom the disease showed itself, on an average, at this period. Facts of the same purport are very familiar, some of which have come under my own notice. For the most part, it is pretty certain in its effects, and all ages are liable to the disease. Even the foetus in utero, sometimes, though rarely, becomes infected, and there are several cases recorded by Jenner and others, of its happening where the mother entirely escaped from previous protection.

An instance is, indeed, given by Sir William Watson, of a child having been born with the marks of the disease, showing that it had suffered and recovered from it in the foetal state.

Nevertheless, some individuals, however exposed, have no susceptibility to it, continuing unimpaired through a long life. Entire families sometimes enjoy this exemption. Foderé mentions the very remarkable instances of those of both of his grandfathers having escaped, and that he himself, though in advanced age, and often subjected to its contagion, had never had the disease. It has, indeed, been calculated, that one in fifty has such

a constitutional immunity. But this estimate seems too large, and in no instance, is an exemption from it to be too confidently relied on. Examples are numerous, of persons who, after escaping for a term of years, where affectability being awakened by some mysterious change of condition, the disease attacked, and for the most part, fatally.

But while contagion must be admitted as an inherent and uniform quality of small-pox, it is not less true, that it is materially dependent, for its nurture and dissemination, as well as for its infinite modifications, on an epidemic influence. That it ever arises, *de novo*, from the same combination of circumstances which first called it into existence, the state of our knowledge is not sufficiently precise to determine positively. But such was the opinion of the early historians of the disease, and which is not wanting in support from the manner of its occasional subsequent recurrences. From time to time it has burst forth, without our being able to trace its revival to any concealed contagion, spreading most rapidly, widely, and always in its worst shapes, from country to country,—exercising an unequivocal sway over all other diseases;—then suddenly disappearing, to return again at some future period,—in all which features, conforming to the phenomena and laws of epidemics. The late prevalence of it supplies a striking illustration of this fact. Breaking out at Edinburgh, in a few years it pervaded nearly the whole world, exhibiting everywhere all those traits I have mentioned. Thus existing, the cause also proves far more operative, so that it subverts, in many instances, the protection afforded by previous attacks, whether naturally or artificially acquired, and secondary small-pox becomes a less unfrequent event.

The histories of the disease confirm these statements. Nor are we without more immediate evidence of it. In 1823, when small-pox appeared in this city, after a long interval, it could not be traced to any imported or derivative source of contagion. Cases sprang up, as it were, spontaneously, at a distance from each other, independent of any probable intercourse, wearing universally a most formidable character, and the failures of variolation, and especially of vaccination, were numerous, with some few examples of the disease, previously had in the natural way, affording no security. As further proof of the dominant epidemic influence at the time, it may be said, that in the

whole compass of our experience, never was exhibited such a tendency to cutaneous affections—every disease, whatever might be its nature, displaying in its course, some eruptive appearance, and often of the most anomalous character and aspect.

Conversely, there are times and places at which the contagion of variola becomes so inactive, owing, as is supposed, to peculiar states of the atmosphere, that it will not operate, some of the most striking proofs of which, it may be well to cite. Examples are related by Van Swieten and Odier, where the disease could not be communicated in certain situations, whatever might be the degree of exposure to the contagion, and Sir John Pringle, physician-general to the British army in Flanders, in the war of 1756, states, that on one occasion, the disease was brought into camp by a body of troops, without it at all extending, though no preventive was adopted. The former Professor Von Doevert, of Leydon, supplies us with an analogous fact. “Twelve children, labouring under small-pox, entered the city of Groningen with a company of foot. These children were dispersed in the houses of the poorer sort of inhabitants, in the midst of numbers who had not had the distemper. Nevertheless, after the most sedulous inquiry, not an individual could be found to whom the infection had been communicated.” His colleague, Professor Sanderson, also mentions an account of similar import, “that in the Orphan House at the Hague, one of the children was seized with small-pox, and though the intercourse between the patient and the rest of the orphans was not interrupted, none of them caught the disease.”

From Sir James McGregor, who held a high appointment in the medical staff, in India, we further learn, that while the disease was raging in the vicinity of the barracks at Bombay, not a soldier took it, subjected, as they were, to the contagion by the freest intercourse with the infected,—and we are assured by Buckhardt, a very respectable authority, that small-pox has never been known in a narrow district of Egypt, prevailing, as it frequently had done, in the surrounding country. As before noticed, it is, indeed, affirmed, that neither it nor any other of the diseases arising from specific contagions, has hitherto been developed in New South Wales. Controlled as they all are, by seasons, and each by temporary conditions of weather, of the latter of which we have a remarkable instance in relation to

small-pox particularly, in the suppression it receives from the prevalence of the Harmattan winds, we are not to be surprised at the influence, in the same way, of more permanent states of the atmosphere, local or general. I have to add that, in a great degree, the same difficulty has been sometimes experienced in the propagation of these diseases, under similar circumstances, by inoculation.

Notwithstanding the plausibility of the conjecture alluded to, that the contagion of small-pox is occasionally generated anew, I am not disposed to adopt it. To me it seems more probable, that the semina of contagion, like those of plants, or ova of animals, and especially of insects, may remain dormant for an indefinite period. As the latter are hatched into existence, by a proper degree of temperature, and other propitious circumstances, so is it required, to bring the former into activity, a peculiar constitution of atmosphere. We are not wanting in proof, that the seminal principle, in each of the instances cited, will endure for a long term of years in a latent state, waiting, as it were, for the vivifying impulse to be supplied,—and may it not be equally true in regard to contagion? The mosquito, the locust, not to enumerate more examples, disappear for a protracted season, having deposited their eggs, to be awakened into life at some favourable conjuncture. Every agriculturist is aware of the reverisons of certain plants, at remote and irregular periods, the seeds of which must have remained in the soil. As clearly does it seem, that the material of this and all other contagious diseases, is governed by a similar law. Much reliance, I am aware, has been placed on the doctrine of equivocal generation, in the explanation of some of the preceding phenomena. But can it be reasonably credited, that any fortuitous combination of elements, which this doctrine supposes, is productive of such definite results?

Lastly, may it be demanded, if the action of the variolous cause can be suspended for months, by change of season only, why may it not be by other influences for years? We have seen, among ourselves, the disease raging during winter, and ceasing on the approach of spring, to appear again on the return of cold weather, and pursuing this order for a lengthened period. It might, perhaps, be shown,—though I am not prepared to extend the doctrine so far, that every disease has one definite cause,

which is active or inert, according to the presence or absence of those contingencies by which its operation is controlled. Can we, at least on any other supposition, so easily explain their occasional prevalence, or the reverse, and, particularly, epidemic visitations and their suspensions? Nearly every disease may assume this popular character—and its being sporadic or more general, mild or otherwise, I think must be referred to the extent and force of the agency by which the cause of the disease is developed and strengthened.

Well evolved, the variolous eruption is so strongly and unequivocally designated, that it can seldom be mistaken. Chicken-pox is one of the cases with which it may most readily be confounded. Even here, however, the discriminating circumstances are, for the most part, prominent and clearly defined. The latter is preceded by little febrile or other uneasiness, and about the second day of attack vesicles appear, which, by the fourth or fifth day, dry away,—at a time when the eruption of small-pox has not gone through its earliest stage. The eruption too, in varicella, is apt to come out in successive crops—is, as intimated, vesicular and not pustular, and the vesicle pointed, and filled with lymph. That of small-pox, on the contrary, is flat and indented in the middle, and does not lose these peculiarities till it reaches complete maturity, when, distended with pus, it becomes ovate or globular. Devoid of the cellulated structure of the variolous pustule, the varicellous vesicle is, moreover, merely cuticle, easily ruptured, when, or by puncture, the whole of the fluid at once runs out.

Nevertheless, it cannot be denied that, in some instances, chicken-pox assumes so much the aspect of small-pox, as to embarrass practitioners the most conversant with the two diseases. Eminent writers on the eruptive affections, confess this—and I have known sometimes the same degree of perplexity to occur in this city.

Examples of *umbilicated* varicella are not rare, of an imperfect formation, as well in regard to the pustules as other circumstances. But it occasionally happens, that in a family where the disease is prevailing at the time, as I have witnessed myself, a case will arise to all intents and purposes, variola in its external physiognomy—and we shall presently see that varicellous epidemics of this character have existed.

There is also the varioloid disease, in which the difficulty of diagnosis is, perhaps, still greater. Commonly, however, it may be recognized by the mildness of the prelusive fever, by the earlier appearance of the eruption, which is scanty, and rather vesicular than pustular,—by the absence of the variolous odour, and by the more speedy commencement of desiccation,—as well as by leaving behind, in place of pits or indentations, a smooth red surface, or small excentric elevations. As, however, in varicella, cases of it are not unfrequent, so intimately allied to variola in every feature, as to defy the best powers of discrimination. But more of this hereafter.

Little is usually to be apprehended in the discreet or distinct small-pox. The confluent, on the contrary, is always alarming,—though less so, where the fever is inflammatory, and the vital forces unimpaired. By the aid of common skill, the constitution will work out its preservation.

Never exempt from danger is the typhoid or congestive condition, and, when malignant, scarcely a hope can be indulged. Much may be deduced from some other circumstances. Nearly always fatal is the disease in infancy, still more so in advanced life, and is most favourable between the second and tenth years of age. The season of puberty, in females, is said to be unpropitious, by a high authority, which I have not remarked. But with pregnancy it is awfully fatal.

An eruption, covering the surface, though not confluent, is dangerous from the injury done to the skin, and is particularly so where the face is thickly invested. The character of the pustules, too, materially influences the result. It is best when they are elevated, round or oval, environed by a definite red areola, and filled with thick yellow pus,—coming out seasonably, and passing normally through the several stages to maturity. Deviations in any respect from this, are calculated to excite solicitude, and especially where the eruption either lingers in its appearance, or manifests itself prematurely,—or the pustules are flat and nearly empty, or indurated or filled with a lymphy, or serous, or darkish fluid, and, above all, with blood.

Cessation of fever, with pallor, and other evidences of collapse, during the eruptive stage, is alarming, and the more so, if followed by suppression of urine, or recession of the eruption. The sudden subsidence of the swelling of the hands, or of the salivation,

is a bad indication. Complicated with any of the affections formerly noticed, the danger is considerably enhanced,—though less when inflammatory than heavily congestive. Laryngitis, however, is an exception, which nearly always proves fatal, on attaining to any height, and the same may be said of bronchitis, the inordinate secretions occasioning suffocation. Derangement in the cerebral and nervous system, evinced by tremors, subsultus tendinum, stupor or delirium, slow and muttering, or wild, particularly the delirium ferox of the old writers, is, moreover, of evil import. Not less so, perhaps, are passive haemorrhages from the bowels, kidneys, or other parts, or petechiae, vibices, sloughing of the fauces, and the other signs of what was once considered a putrid diathesis.

The eleventh and thirteenth days are thought, usually, the most dangerous,—though the eruptive stage throughout is critical, and much is to be apprehended from any extraordinary violence of the secondary fever. But, under all circumstances, natural small-pox proves frightfully fatal,—one out of four dying, whatever may be the advantage of situation, or the degree of medical skill,—and this mortality takes place when there is no extraordinary violence in the disease. The reports of the London Small-pox Hospital, show that, for the last fifty years, the deaths have averaged about thirty, though, on some occasions, amounting to forty per cent. With the malignity incident to some of the occurrences of it, two out of three perish, or even a greater proportion. We lost, in the beginning, more than one-half in hospital practice, in the last epidemic prevalence of it in this city. The same mortality has happened elsewhere, and especially, in the hospital at Ceylon, in the year 1819.

Diversified as this disease is by gradations of severity, as well as adventitious complications, the phenomena, on dissection, must of course, be materially different. The mucous membrane of the stomach and small intestines is florid and highly injected, in patches or more diffused, and that of the lungs often in a similar condition, though usually not so intense, with the brain, particularly its arachnoid tissue, scarcely less affected. But in very violent attacks, the ravages of the disease are manifested throughout the parts enumerated, to the destruction of organization, in which condition is also sometimes found most of the contents of the abdomen.

The case being of a typhoid congestive character, the phenomena are correspondently modified. Connected with pervading lesions of the mucous membranes, such as livid or encymosed blotches, and sometimes softenings, erosions or ulcerations, there are venous engorgements of the solid organs, in substance and investing tissues, with effusions, more or less, in the great cavities. The old writers represent the state of things as that of one mass of putrefaction.

Both in France and England, much attention has lately been paid to post-mortem examinations in this disease. We learn, that, in the "Maison des Enfans," at Paris, the appearances were, inflammation and ulceration of the internal coat of the intestines, with pustular eruptions there, and frequently more or less of peritonitis. False membranes, as in croup, were also discovered in these cases, lining the whole alimentary canal, from the œsophagus to the rectum.

Mr. Hastings and Mr. Alcock, of England, tell us that, united with such phenomena, the air passages were even more affected,—everywhere, throughout their whole extent, meeting with inflammation, and its immediate or secondary consequences—extravasations, adventitious membranes, ulcerations, &c. Greater lesions of this structure is a common observation of the British writers, which, if they really exist, must be ascribed to the influence of their severe, damp climate, so prone to originate pulmonary disease, as well as to modify others, by implications of the lungs.

Cross, who has a deserved reputation, found additionally what he considered imperfect pustules, in the *primæ viæ*. "The rectum, the colon and ileum," says he, "were marked with circular patches, distinct and white," which he considered as such. By Rostan, and several others of the late cultivators of morbid anatomy, the same observation has been reported.

Examinations have been abundantly made in this city, many of which I had opportunities of witnessing. The phenomena, in general, corresponded very much to the preceding description,—consisting of a mixture of inflammation and congestion, the one or the other state preponderating, according to the character of the case. The alimentary canal was decidedly most affected. But though every part of it was occasionally phlogosed, I saw nothing like regular pustules, nor did I hear of any such having

been detected. The mucous tissue, however, of the bowels, in some instances, was found studded with prominent points, which were referred only to follicular inflammation, and, I believe, justly. Difficult, indeed, is it to conceive how a pustule could be formed in this membrane, without its chorion were previously thickened by exposure to the air, such being its natural delicacy of texture, that it would probably burst long before maturation; and in this opinion I am confirmed by Contunius, Cazenave, and Schedel, who, in their numerous dissections, never observed pustules in this situation. They are, I have no doubt, confined to the skin, or lining of open passages—the mouth—the fauces, &c., or the upper portion of the larynx, perhaps exclusively, excepting in those rare instances of prolapsus of the uterus or rectum, where, by long exposure to the atmosphere, the mucus is partially or completely converted in the tegumentary tissue.

Equal research has been directed to determine the anatomical characters of the exterior surface. Those who are interested in such minute and unimportant investigations, I must refer to other sources of intelligence, and shall now give only the most prominent appearances. The cutis vera is the seat of the eruption. Commencing here at what are called the stigmata or red-points, an irradiation of the phlogosis takes place, forming around these an areola or halo of the several shades of red, and of different dimensions, according to circumstances. Not caused, as once supposed, by enlarged papillæ, the eruption proceeds merely from vessels shooting out of the stigmata effusing lymph and next secreting pus, by which vesicles and pustules are successively raised. Deposited on the true skin, there is to be found a thick pulpy-like matter, probably lymph, and subsequently may be seen the sloughs of ulceration. Though the inflammation rarely extends to the subcellular membrane, save in confluent or malignant attacks, an erysipelatous blush is often diffused in various degrees over the external surface. By some of the highest of the present authorities, it is maintained that the ulceration of the cutis, to which I have just referred, is the most unerring criterion of genuine small-pox,—serving to discriminate it from all of its affiliated affections. But it cannot be uniformly trusted. Cases of varicella, of the varioloid, and, indeed, of any eruption becoming pustular, I have known productive of precisely the

same effect. By this ulceration it is, the pits or scars, or seams, are occasioned, which, when deep, indelibly remain.

The pock has, in the early stage, a cellulated or multilocular structure, losing in part at maturity this conformation by a conversion into a sac, charged with pus, and is now acuminated, or globular, having lost its antecedent flat and umbilicated aspect, so characteristic of small-pox.

These are the principal phenomena appertaining to the skin in the ordinary and regular forms of the disease. The appearances in the anomalous deviations of it are very different, which, however, as not being well ascertained, or of any practical utility, I may be spared the endeavour to describe.

Nothing in this view of the morbid anatomy of variola, strikes us more than the total want of light shed by dissection on the peculiarity of the nature of the disease. Not a single circumstance does it conduce to this end. The phenomena of the interior structures are the same as in rubeola, scarlatina, and indeed of most of the continued fevers. It is an instance, additional to an immense mass of proof, which might be adduced of the utter fruitlessness of autopsic inspections, with the design for which they are at present so ardently pursued.

Easy will it be, after the foregoing exposition of the disease, to deduce its pathology. Like the exanthematous fevers generally, it is radicated in the mucous membrane, chiefly of the upper portion of the alimentary tube, to be thrown off finally on the tegumentary tissue as the natural process of cure. The whole of these affections thus arise, and the great aim of nature to relieve the system of them, is by a transference of the irritation from the interior to the exterior surface, as better able to endure it. The metastasis being complete, the effort succeeds, and all does well. But where the irritation still lingers behind, or comes out partially, or after reappearing, recedes, or instead of a translation, an extension of it takes place, without interruption of continuity, so as to embrace both tissues, the inward and outward, then a deplorable state of things inevitably prevails.

Of such an origin of small-pox, the evidence is stronger than of any of these affections. Not to insist on the proofs of this position which, in common with its congenera it supplies,—the early symptoms, the relief afforded by the appearance of the

eruption, and the phenomena on dissection, it may be demonstrated in another way.

By repeated, and well conducted experiments, it has been shown that the virus of small-pox cannot act through the skin, without an abraded or punctured cuticle, in which event it gives rise to local irritation, and, as an ultimate result, the inoculated disease.

It must then operate on an interior surface. Elsewhere I have shown, and I think conclusively, that affluvia, contagious or otherwise, are not received by the lungs into the circulation. The stomach, therefore, being the remaining surface, to which the poison can have access, must constitute, of necessity, the seat of the initiatory impression. It is on such an hypothesis, only, that the difference between the natural and inoculated varieties of the disease is explicable.

Were the virus actually conveyed into the blood, and did it produce its effects, through the medium of that fluid, it would be of no moment at what point of the system the intromission took place. From the thorough commingling which the blood undergoes, in the route of the circulation, any portion of it being vitiated, the whole must be equally so, and the disease ensuing, in every case, be essentially the same.

Granting, however, as is the fact, that the virus instead of entering the blood, deranges the system by sympathy, and the difficulty of explanation at once vanishes.

Disease is violent, or the reverse, according to the importance of the organ injured,—the nature of the lesion, and the power and extent of its connections. No organ is more important than the stomach; the injury it suffers in this case, is usually severe, and its sympathies, in strength and extent, seem paramount to those of any other. Consequently, on its reception of the virus, it being deranged, casual small-pox, marked with severer symptoms, is the ordinary result.

But under inoculation, the poison operating on a small portion of the skin, only, which is more capable of sustaining the injury,—and the sympathies of that portion being comparatively weak and limited, it follows that the affection excited must be comparatively moderate. This difference is strikingly illustrated in the endermic application of active remedies, where, to attain the effect of a dose by the stomach, three or four times the amount

is required ! What, in fine, is the lesion, that would not prove more serious, inflicted on the stomach, than the skin ?

Nor, without the adoption of this hypothesis, can an explanation be had of some other phenomena of the disease. Casual small-pox, we have seen, shows itself on the fourteenth day, while that from inoculation, in half the time,—and if, in each instance, the virus acts by entering the circulation, and commingling with the blood, how could this wide difference happen ?

Nor is it of any moment, in the process of inoculation, whether a larger or smaller quantity of the virus be inserted, the subsequent effect being not at all controlled by this circumstance. An ounce of the virus would, probably, not make a stronger constitutional impression than a single particle. Conceding this, which, to a certain extent, has been demonstrated, and it is scarcely possible to have more conclusive proof that the disease is propagated by irritation, and not by any contamination of the blood. Not a tittle of evidence, indeed, is there, that the blood is thus vitiated. Can we infect from it, which we ought surely to do, did it contain the virus ? As in all other instances of disease, there is here a point primarily irritated, with which the system, being brought into concert, a general disorder ensues.

That such is true as regards the inoculated disease, or, in other words, that the subsequent effects are dependent on the original irritation, is as manifest as that a stream of water with its various ramifications, proceeds from a fountain by which it is fed. If this be not so, why are we vigilant to preserve the integrity of the parent pustule against those molestations by which it might be affected ? Do we not know that, when this is disturbed in its progress so as to subvert its specific action, no specific impression is made on the system, and the act of inoculation becomes impaired, or is completely defeated ? Duly estimating this fact, I think no more ought to be exacted, to establish the position for which I am contending.

Contradictory of these views, however, the occasional occurrence of the disease in the foetus is adduced, as of a very decisive nature. But the reverse does it import. No one point in physiology is better established, or more freely allowed, than that there is no direct vascular connection between the parent and the offspring. Destitute, then, of any intercommunication by blood-vessels, how can the virus in the maternal blood reach the

foetus? The basis of the hypothesis thus proved to be unsound, it of course falls. Two modes explanatory of the infection of the foetus, under these circumstances, may be conjectured. The contagion might, possibly, as has been suggested, though I do not believe it, penetrate through the vagina of the mother, and thus be brought to act on the uterine contents. No necessity is there, however, to resort to such a supposition. To a certain extent, the foetus is an integral portion of the maternal system, evolved, sustained and perfected by its resources, and susceptible of derivative impressions from it. Of the precise means, or manner of the connection between them, we are not informed. Nerves are said to have been demonstrated in the placenta and umbilical cord. But I insist on no such medium of connection, it not being essential to the support of my proposition. Though to be traced generally to an inosculation of nerves, numerous are the sympathies seemingly independent of it. Not to cite examples superfluously to this purport, what, I demand, is the nervous communication between the parotid gland and the testes, or the mammae? What that between the uterus and mammae? Let, however, the explanation be as it may, the fact is undeniable. It is by the adoption of sympathy, that a solution of this problem can only be had, and by which we are supplied with a clue, like that of Ariadne, to conduct us through the mysteries of the animal economy, otherwise more dark and intricate than the Dædalian labyrinth itself.

An additional remark or two only have I to make, in regard to the pathology of small-pox. From what has been said, it sufficiently appears that irritation commences in the mucous membrane of the stomach particularly, which, in the natural course of things, is translated to the skin, as a part more capable of bearing it. The metastasis being complete and firmly established there, the issue is generally favourable. But when the eruption is very extensive, and, especially, confluent, the functions of that integument, so important in the operations of the animal economy, are interrupted, its vitality impaired, or, perhaps, destroyed, and death ensues, from this condition chiefly or entirely.

Not the least curious circumstance connected with the history of this and its kindred affections, is the usual destruction of susceptibility of the system to any repetition of attacks. What is

the mode of action of that infinitely small portion of virus, and the nature of the change it produces in the organism, which, with no appreciable disturbance of its identity, accomplishes this wonderful end? Considerable ingenuity has been exercised in the solution of the enigma, without, however, shedding a single ray of light on it. Like generation, growth, and many other vital operations, it is hid in impenetrable obscurity. To recite the vain conjectures of others, or to obtrude one of my own on the subject, were idle, and both I shall hence decline. An inquisitive personage once said to a venerable medical friend of mine, Why cannot an individual have the small-pox twice? Tell me, he quickly replied, the reason he has it at all, and I will then endeavour to solve your difficulty! This smart retort, I suspect, conveys about as good an answer, though no explanation, as will be found in any of the graver speculations regarding this mystery.

We now come to the treatment of small-pox, which must be deemed an incurable disease, so far, at least, as that in common with most, or, perhaps, all fevers dependent on a specific contagion, it will run a definite course in spite of our efforts. Nature here works to the deliverance of the system by a series of unintelligible processes, which eventuate in the recreation of the same sort of virus as that which had originally excited the affection.

Disease is one of the curses entailed on our fallen condition, and to perpetuate this particular class, it would seem to be ordained that we should be debarred the power of counteracting the agency by which the seminal principle is regenerated. In this respect, the same pains are taken as in the preservation of some of the productions of the animal and vegetable kingdoms. As the seeds for future regeneration are there elaborated, so is the principle of contagion by these contagious fevers.

Could these cases be cured, a chasm would be made in the order of a particular design, which is not permitted. Yet, in conformity with the general benevolence of Providence, what cannot be entirely relieved we are enabled to palliate, and such is the amount of our best endeavours in small-pox.

It may be collected, from the preceding views, that, where the disease is mild, and pursuing its career undisturbed by anomalous or exasperated affections, it were better to forbear the use of remedies, and to leave it pretty much to the efforts of nature,

regulating mainly the diet and temperature. But, our aid being demanded, we adopt essentially the same plan in the variolous as ordinary fevers, accommodated to the condition, inflammatory, congestive, or mixed.

To the first of these states I am now to address myself. For the most part, it will be right to commence the treatment with an emetic, and especially where we have reason to suspect irritating ingesta, or an otherwise vitiated stomach. But it should be restricted to the earliest stage, and resorted to with all those cautions, regarding the existence of gastric inflammation, on the importance of which I have elsewhere insisted. This remedy, thus timely exhibited, has signally useful effects in the whole of the eruptive fevers, operating, probably, as well by rectification of the stomach itself, as by occasioning a determination to the cutaneous surface, thus preparing it for the reception of the eruption.

Next, a recurrence is to be had to the saline laxatives, so as to keep the bowels in a soluble state. Calomel was here greatly preferred by the older practitioners, under an impression that it exercised some specific influence. But such a notion, I think, is unfounded—and, though not pernicious in moderation, mercurial purging is unnecessary.

Excessive intestinal evacuation, particularly by drastic articles, should, however, be carefully avoided, as concentrating and fixing the disease in its original position, or tending greatly to the prevention of the translation of it to the skin, and, in other respects, interfering with the natural process of cure.

Mild diaphoretics, the acetate of ammonia, or dulcified spirits of nitre, or a weak solution of emetic tartar, or the neutral mixture, or both combined, are used.

It has been remarked that a moderate perspirable condition, not a *sweat*, is among the most salutary occurrences in the disease, and hence the importance of the means by which it is excited or maintained.

The preceding remedies may answer. But, when the fever is high, with a heated skin, and much local affection of any of the great organs, venesection cannot be dispensed with, and ought to be repeated, as the necessity of the case imposes. There is, however, some difference of opinion among practitioners as to venesection, though the weight of authority is decidedly in favour of it. Commencing with Rhazes, we may trace the strongest

recommendation of it through Sydenham, Mead, Friend, Huxham, down to Armstrong, and still more recent writers, including, also, the best practitioners of our own country at all times. Nevertheless, it has no decided curative effect, and the same may be alleged of all other means. But, though it does not arrest or change, it abates the intensity of action, and it is on this principle we resort to it, in common with the rest of the measures usually prescribed in the eruptive fevers, among which, topical bleeding is of the utmost importance. Most of the vital organs are now deeply implicated, and, to preserve the integrity of their structure, should be our principal aim. To relieve tenderness of the epigastrium, and the attendant gastric distress, or phlogosis of the brain or lungs, or overfullness of these organs, leeches or cups are incomparably effectual, and ought never to be neglected.

When the surface is very hot, applications of cold water have been recommended, even by aspersion. But sanctioned as it is by some high authority, the propriety of the practice is questionable. Better were it merely to sponge the surface, the utility of which cannot be too strongly urged.

Convulsions in children, which I have said are apt to occur, may, when slight, be relieved by cold applications to the head, with a stimulating pediluvium at the same time. But should they be violent, the loss of blood, sinapisms to the extremities, and an opiate become necessary.

The extent of the eruption, and other affections, being pretty nearly proportioned to the degree of reaction, the leading object is to restrain, and keep this down, with which intention the antiphlogistic plan must be pursued in every respect. But above all, is it required to have the patient in a cool and well ventilated apartment, more so than in any other disease, and to let him sleep on a mattress, with little covering. It has, indeed, been found beneficial in hot weather, to expose him, even to the cool external air, where an unusual degree of heat and fever prevails.

This cooling or antiphlogistic practice was adopted early in the history of the disease. By Rhazes, such is, at least, recommended, which, in the revolutions of our science, and especially when the chemists and humoralists got possession of the schools, was entirely changed by their preposterous pathological and therapeutic views.

Considering the virus to be in the blood, and that it was to be

expelled through the skin, by the force of fever, they adopted the most heating and alexipharmac measures to accomplish this end. The patient was wrapt up warmly in bed, the room kept heated, the doors and windows carefully closed, to the exclusion of every breath of fresh air, and stimulating sudorifics, with wine and cordials, administered copiously. Gaddiston, who lived in the fourteenth century, the first court physician, and I believe the very earliest of English medical writers,* went further, and recommended that the patient should also be surrounded with “red curtains, red walls, red furniture of all kinds, so that every thing he saw should be red, under the idea that there was something glowing or otherwise beneficial in that colour.”

Giving an account of the practice of the time, Sennertus, who wrote at the beginning of the seventeenth century, says: “That, while using these means, every attention is to be paid, especially in winter, to the exclusion of cold air. The patient, therefore, is to be tended in a warm chamber, and carefully covered up, lest, by closing the pores of the skin, the efforts of nature should be impeded, the humours driven on internal organs, and matter which ought to be expelled, retained within the body, to the imminent danger of the patient, and the certainty of increasing restlessness, fever and other symptoms.”†

Diemerbrock, who lived about the same time, holds even stronger language on the subject. “Keep,” says he, “the patient in a chamber close shut. If it be winter, let the air be corrected by large fires. Take care that no cold gets into the patient’s bed. Cover him over with red blankets. Not that the colour is material, but because all the best, thickest, and warmest blankets are dyed red. Never shift the patient’s linen till after the fourteenth day, for fear of striking in the pock to the irrecoverable ruin of the patient. Far better is it to let the patient bear with the stench, than to let him change his linen, and thus be the cause of his own death. Nevertheless, if a change be absolutely necessary, be sure that he puts on the foul linen that he put off before he fell sick, and above all things, take care that this supply of semi-clean linen be well warmed. Sudorific expulsives are, in the mean time, to be given plentifully, such as treacle, pearls and saffron.”

* The book is entitled *Rosa Anglica*.

† *De Variolis et Morbillis*; tom. vi.

As might be supposed, the mortality from such a plan, was immense. The keen sagacity of Sydenham discovered the error, and dictated the appropriate reformation, in the revival of the ancient practice, which has since been established by lengthened and concurrent experience.

In regard to the typhoid form of the disease, the treatment is different. This is a case of weak, inflammatory action, mixed up with a preponderance of congestion, and is to be managed on the principles, and by the remedies applicable to this condition under ordinary circumstances.

Evacuations of the alimentary canal are commenced with, though not to be carried to any great extent. An emetic, however, and purging in the beginning, should be practised where there is heavy visceral turgescence, and the latter by calomel. The loss of blood is sometimes of equal importance, and has been too much overlooked. Even when venesection is not allowable, topical bleeding may be safely and efficaciously employed. Early, however, we are sometimes compelled to resort to the means calculated to sustain the *vis vitæ*. To promote the filling and maturation of the pustules, a process languidly performed by the natural powers, or to restore the eruption, when it recedes, a combination of the sulphate of quinine and opium, or the carbonate of ammonia or camphor, and wine whey, with the warm-bath, constitute the best of our resources. Emetics have been proposed for the latter purpose, and might be serviceable. More certain, however, with either intention, are sinapisms and blisters, which are commonly put on the extremities, and, though indubitably serviceable there, are less so than over the epigastrium. Be it remembered, that, in all those affections seated in the stomach, much is attained in their feeble states, by arousing the energies of that viscus, and such applications are eminently appropriate to the occasion.

The case advancing with increased prostration of strength, an appeal is to be made to the freest use of the cordial and diffusible stimuli, at the head of which, in point of efficacy, is wine.

That the spirit of turpentine, as an internal remedy, might be useful at this period, is probable from analogy. Especially does it seem suited to those cases attended by petechiæ, vibices and passive hæmorrhage. But I have no adequate experience with

it. Much is said by Sydenham, under these circumstances, of the peculiar efficacy of the sulphuric acid.

As previously stated, it is a usual event, in both forms of this disease, at the full maturity of the eruption, the latter being large, for a fever to arise, or, if it have continued, to increase considerably. Except puncturing the pustules, so as to remove the irritation of distension, I am not aware of any peculiarity in the established treatment. This is to be shaped to the nature of the case, and, inflammatory or typhoid, to be managed on similar principles and by the same measures, as if such were the state originally. Extreme nervous irritation and inquietude supervene in some instances. Combinations of opium and camphor are here very apposite, and so is Hoffman's anodyne liquor.

I have suggested that the state of the skin itself, in the confluent disease, most materially influences the result. The condition is very similar to that of an extensive scald or burn, productive of nearly the same train of symptoms, occasioning death probably in the same mode.

How far certain lotions, or other external applications, might in this case be beneficial, remains to be proved. We shall presently see that camphor holds out some favourable promises. What should further encourage us to the employment of topical applications, is their unequivocal efficacy in erysipelas. Many are the instances of this disease kept up by irritation of the skin, that would terminate fatally were it not thus allayed.

An application to the surface of the mucilage of flaxseed, in the active inflammatory stage, I am sure would be proper—and, perhaps, in the subsequent or asthenic condition, the camphorated or Kentish ointment might be equally so—such being the most successful remedies in the analogous affections to which I have alluded.

These are views, I believe, entirely original with myself, which I have not had opportunities of subjecting to an adequate practical test. The experiment, however, I cannot help thinking is worthy of trial.

Of the minor parts of the treatment in small-pox, one, which demands particular attention, is the prevention of those marks which are so detrimental to female beauty. As an exposure to the air is thought necessary to the production of the eruption, so our contrivances are directed to its exclusion.

Covering the face with fine cambric, spread with the mildest cerate, sometimes succeeds;—and, formerly, our practitioners relied greatly on a coating of the blue mercurial ointment in this disease and in erysipelas. But it so frequently induced very terrible salivations, that it came to be discontinued. Calomel ointment, and a weak solution of corrosive sublimate, were also popular applications at the same period, which have fallen into abeyance. Camphor is reputed to have the same effect. Rosentein, a respectable writer on the diseases of children, affirms that, if the skin be smeared over with camphorated ointment, the eruption will not take place on that part. Baron Larry informs us that, while in Egypt, he learnt that it was the practice there to protect the face with gold leaf, such as is used by gilders—and Le-grand, a Parisian physician, has declared that he found it on trial completely successful, even in the worst cases. The leaf should be previously smeared with the mucilage of gum arabic, to secure its adhesion to the skin. By some other of the French writers, Velpeau and Mayreux, we are told that puncturing the pustules with a lancet, and then touching them delicately with lunar caustic, they will be so destroyed as to leave no marks. But this must be done on the first or second day of the eruption, it being nugatory afterwards. Neither of the expedients mentioned have I tried, though they are certainly deserving of attention. My own practice has been to subdue inflammation as far as possible by cooling lotions, to open the pustules as soon as they fill, and wash them with milk and water, taking care, also, as far as possible, to keep the face covered. It appears, however, that the most effectual means is the exclusion of light. Experiments, made some years ago, at New Orleans, if they can be relied on, and I know of no reason why they should be distrusted, are very satisfactory on this point. To try the effect of this expedient, a certain number of patients, during the eruptive and maturative stages of the disease, were confined in a dark ward of an hospital, and not a pit or scar, or other deformity of the skin, was left, though some of them had the disease most violently, even in the confluent form. These experiments were originally performed by Dr. Picton, a graduate of the University of Pennsylvania, and were contained in his inaugural thesis, which I had published on account of its merits. Notices of their

confirmation I have lately seen in the medical journals of several of the European countries.

Not the least serious of the local affections, is ophthalmia, causing very often blindness, by disorganizing the eyes. There is, however, as usually managed, nothing peculiar in the remedies. To prevent the inflammation, Rosentein advises, as very effectual, a bag of camphor to be kept before them. As to the ulcerated throat, an occasional incident also, the same detergent gargles, as in angina maligna, are to be directed. The best preventive, according to the writer just cited, is the free use of a camphorated gargle.

With this, I dismiss the subject of casual small-pox.

INOCULATED SMALL-POX.

Long has it been known, that, by inoculation, this disease is disarmed of much of its violence, and of nearly all its danger. To such success had its management been reduced, under propitious circumstances, that it was computed only a very few deaths took place.

Woodville asserts this as the result of his practice in the small-pox hospital of London. Baron Dimsdale, the great inoculator of his time, computes that not one in fifteen hundred died, and the Suttons aver, that they did not lose a single patient in twenty years. The late Professor Kuhn told me, that he had never lost one whom he inoculated—the same statement was made to me by Professor Physick, of his success, and who added that, he learnt from Professor Rush, that he had lost only three, owing, in part, to extraneous causes. Of the many whom I formerly had under my care, I do not recollect a solitary instance of death. The reports of the London Small-pox Hospital, for 1797, 1798, and 1799, show that among five thousand nine hundred and sixty-four cases, nine deaths occurred, or one in six hundred and sixty-two, which is probably near the average, where proper advantages are commanded. Nevertheless, as we shall presently see, the average of mortality is considerable,—though there is still little to be dreaded from the practice when skilfully conducted.

An explanation has already been given of the mitigation of

the disease by this process. But it is alleged that it undergoes a further change from it. My allusion is to the deprivation it sustains of its infectious nature, or that, in this state of amelioration, it ceases to communicate itself through the medium of the atmosphere. Looking over the writers on the subject, I find that, while its capability, under these circumstances, is generally not doubted, there are many of the highest authority, particularly of the continent of Europe, by whom it is utterly denied, and others that concede it in a slight degree only. These reports are entitled to the more weight, as proceeding from individuals whose attention was directed specially to the inquiry.

I can spare time to select only a few, from an immense mass of facts which might be adduced. These are all to be met with from the middle to the close of the last century,—henceforward vaccination engrossed the medical mind, to the total exclusion of further investigations of small-pox. Medicus, a very distinguished man, in his correspondence with, perhaps, the still more eminent Petit, states that, though he had inoculated very largely, not more than ten instances had occurred to him in which there was any reason to suspect infection. Meige, who was a renowned *inoculator*, of most extensive practice, declares that he had only seen a single case, and that induced by contact “per osculum, idioque proximum, per contactum accidit.” By Professor Schroider, of Gottingen, we are told that, “he had never met with an instance in which the inoculated small-pox had by infection given the disease.” The same assurance we have received from the well known Odier, of Geneva,—and Schevanke, Watkinson, and several other respectable writers afford most striking proofs of inoculation having been pursued in communities, and sometimes in hospitals or other confined places, where infection, if existing at all, must have been concentrated, without any manifestation of effect on unprotected individuals freely exposed to it. To this question, says Watkinson, “I have paid particular attention, since the establishment of a dispensary for general inoculation, and can with truth affirm, that not a single instance has occurred in that charity, in which the contagion was spread by an inoculated patient. Where the chance of spreading it has been apparently great, I have been very strict in my inquiries.” He adds, that “some inhabited narrow streets, or little courts, and ground floors, the doors of which were kept

open, and though surrounded by persons obnoxious to the disease, and especially by a set of children, who continually played before the houses, a few yards only from the sick, all escaped infection." Exceedingly strong is the testimony of Mr. Holwell, at least in regard to India. Living in that region for thirty years, and during the period inoculating multitudes, he affirms positively that "it never spreads the infection, as is commonly imagined in Europe."

On this point, I cannot come to any satisfactory conclusion, from the want of adequate experience. No opportunities, indeed, have we in this city, for prosecuting the investigation. By legislative enactment, so heavy a penalty was imposed on inoculation, that the practice has long been entirely suppressed. Except clandestinely, I doubt whether we have had an instance of it for thirty or more years. That inoculated variola may be uninfectious, is, however, not improbable in itself, and is corroborated by some analogies. Examples are abundant of diseases indisputably contagious, and not at all infectious, that is, supplying a virus operative by contact or inoculation, without the generation or escape of any effluvia efficient to a similar end, among which syphilis is conspicuous. But a more pertinent illustration we have in the vaccine affection, which, while contagious, is totally void of infection, and, as it is probably modified small-pox, it may be rationally conceived that, by inoculation, such a change is wrought in the latter disease, as to bring it into the same category. Granting the plausibility of all this, I still think that better evidence than any hitherto adduced, is required to determine the question, and, from the deep interest it involves in several relations, I trust it will command the most careful observations and experiments, by which alone certainty can be obtained.

By whom the great discovery of inoculation was made, or among what people it originated, are questions of some obscurity. The Chinese, who reluctantly acknowledge a priority of claim to any thing, aver, that the practice of propagating small-pox, by the introduction of scales of the eruption into the nostrils, immemorially prevailed among them. Even if it did, it must be considered as giving the affection in the natural way, and not by inoculation. They denominated it sowing or disseminating the disease.

Tradition reports also, that the practice of artificially impart-

ing small-pox, existed at a very remote period in Hindostan, and the execution of the office was committed to a particular tribe of Bramins, exclusively professing a knowledge of the art, who were delegated for the purpose, from certain religious colleges, to travel through the provinces. With a vast deal of ceremony and superstitious observance, the operation was performed by applying cotton soaked in the virus, on a small incision, and which was really inoculation.

The credit of introducing this discovery into Europe is generally accorded to the well-known Lady Mary Wortley Montague, while at Constantinople as the wife of the British ambassador. Writing home on the subject, she says: "The small-pox, so general and fatal among us, is here entirely harmless, by the invention of engrafting, which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn, in the month of September. Every year thousands undergo this operation, and the French ambassador says, pleasantly, that they take the small-pox here by way of diversion, as they take the waters in other countries. There is no example of any one who has died in it—and you may believe I am well satisfied of the safety of this, since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England." The communication of this event by her was in 1717. Soon afterwards she had her son inoculated, and, five years later, returning home, her daughter was subjected to the same operation, the very first done in Europe.

An attempt has been made, though unavailingly, to despoil her of this distinguished honour, by alleging that the usage existed antecedently in Wales, and the Highlands of Scotland, as well as in several of the countries of the continent of Europe. It is said that, in Wales, it was called buying the disease, from a notion that inoculation could not produce the proper effect, unless the person from whom the variolous matter was taken, received a piece of money, or some other article, in exchange for it, from those it was intended to infect.* Be it as it may, these averments against her claim, in my opinion, want the support of authentic evidence. Yet it is true that the practice of inocula-

* Woodvill's Hist. of Inoculation, vol. i. p. 42.

tion or engrafting the disease, as it was then entitled, had been published in England, in 1714, by Timoni, a physician of Constantinople, and by Pylanini, of Venice, and the next year by Kennedy, an English surgeon, who had visited Turkey. These publications, however, attracted little or no attention, and cannot derogate from her pretensions.

As means of preserving the exquisite beauty of their women, the practice prevailed with the Circassians, from whom the Turks borrowed it, and seeing its efficacy constantly illustrated, the celebrated female, to whom I have alluded, ventured on the trial just mentioned, and extended the benefits of the practice to her own country.

Like all innovations or new discoveries, this encountered in the commencement a violent opposition, as well from popular ignorance as medical prejudices. It was arraigned as an impious attempt to counteract the visitations of Providence, not recollecting, according to such a notion, that every effort to arrest or mitigate the evils to which humanity is exposed, even the whole art of medicine itself, becomes involved in the same criminality. The pulpit thundered forth its anathemas against the sinfulness of the act, representing it, when voluntarily submitted to by an adult, in the enormity of suicide, and in children, as an atrocious murder of the "little innocents," for which the most awful responsibilities were hereafter incurred. Not wanting, indeed, were some, who, in the frenzy of fanaticism, went so far as to pronounce it the invention of Satan himself, and its supporters as sorcerers and atheists, arrayed against the will of God. By one of these infuriated preachers it was gravely declared that inoculation is a very ancient art, first practised by the Devil on Job, and to which all the afflictions of that memorable sufferer were referred. This odd conceit, however, did not escape animadversion, and was very appropriately answered by a wag, at the time, in the following doggerel rhymes:

"We are told by one of the black robe,
The Devil inoculated Job;
Suppose 'tis true, what he doth tell,
Pray, neighbours, did not Job do well?"

Disreputable, also, was the conduct of a part of our own profession, raising objections to it as futile as they were ridiculous and absurd. But, happily, in this instance, there were enough

of those master spirits, who are prompt to arise, on such occasions, to put down ill-directed hostility, and to secure the ultimate triumph of a good cause.

Much praise is due to our own country for the establishment of the practice. In 1721, when it had only been adopted in England in a few instances, and these chiefly on malefactors, whose punishment by death was commuted, and a load of prejudice still existed against it, Boylston, of Boston, a name deservedly high in the annals of American medicine, against the unanimous opinion of the other physicians of that city, and in direct contravention of an edict of the municipal authorities, carrying with it heavy penal consequences, had the intrepidity to inoculate two hundred and eighty-six persons, of whom six only died. The disease was prevailing extensively at the time, and, out of five thousand seven hundred and fifty-nine persons, who took it in the natural way, eight hundred and eighty-four perished.

To escape from the conviction of the inestimable advantage of the process, after so successful an experiment, was impossible, and, when the result transpired in England, doubt and hesitation were rapidly removed,* and the practice, in no long time, came to be generally adopted. Enlightened on the subject, perhaps by this very intelligence, the reigning family at the period stepped forward and submitted to inoculation, to enforce it by the weight of their example, which, no doubt, to a great extent, had an effect.

Treating of the events of 1723, Smollet, the historian, says: "That the practice of inoculation for the small-pox was by this time introduced into England from Turkey. The Prince Frederick, the two Princesses Amelia and Caroline, the Duke of Bedford and his sister, with many other persons of distinction, underwent the operation with success." Comparing dates, it will be seen that this was two years after the report of Boylston. Yet, owing to the death of the grandson of the renowned Marlborough, and, perhaps, of some other distinguished personages, such was the panic excited, the practice relapsed into discredit in England, and to such a degree that, so lately as the middle of the last century, it had fallen almost into neglect or disuse. Neither

* Ramsay's History, vol. i. p. 272.

in Turkey nor in England, we have reason to suppose, had the practice been so successful as represented. The low and illiterate character of the individuals, into whose hands it had devolved in the former country, avouches the want of skill among them, and, in regard to that of the latter, we are now aware of its mortality, averaging one in fifty subjects.

Meade relates, that about this time, the most favourable accounts of the success of inoculation arrived from America and the West Indies, which, affording encouragement to its revival, the College of Physicians declared in its favour—a well-regulated hospital appropriated to this object was opened in London, and henceforward it became firmly established, till the introduction of vaccination, by which it has been nearly superseded. Largely, however, was this ultimate triumph owing to the improvements made in the treatment of the disease by the celebrated Suttons.*

The progress of this discovery was, throughout the continent of Europe, still more retarded. Except in Hanover, into which it had very partially crept, nowhere was it to be recognized. *Narcotized* Germany laid, at the time, prostrate under the stupefaction of despotism, unable to “shake the poppies from her head,”—insensible to improvements, and, perhaps, without the consciousness of possessing those fine intellectual energies she has since displayed. The very attempts to introduce this new practice were met by mounds of popular prejudice, encouraged and fortified by her most eminent medical men, De Haen, Van Swieten, &c.

Even in France, with the illumination of her literature, science and philosophy, it had to encounter, for a season, an irresistible opposition. Condemned, *ex cathedra*, by the faculty of medicine at Paris, it remained slighted for many years. Neither appeals

* These were two brothers, who, after having been trained to surgery, settled in different portions of England, devoting themselves principally, I believe, to the study and practice of inoculation, and acquired immense reputation for superiority of skill. The merits of their practice consisted in abridging the preparatory course from a month to a week, using the antimonials and mercurial purging, in selecting with care the matter to be employed, and infecting by a single puncture, in the restriction to a spare diet and cooling drinks,—the avoidance of inordinate exercise or other heating exertions, and in the freest exposure of the patient, during the fever, to cold air. They, in fact, did little more than imitate the plan of Sydenham in regard to the management of the natural disease.

to reason nor common sense, nor the weight of cumulative facts, had any effect. Finally, however, Voltaire, returning from England, whither he had been, took the subject in hand, and, by his representations of the immense advantage of the new practice, which he had there witnessed, and above all, as the only preservative of female beauty against the most hideous deformities, enlisted the ladies of the court in its behalf, and henceforward inoculation became quite the vogue in the higher circles, whence it spread, as other fashions, among the people. To the influence of this extraordinary man, operating on the vanity of women, does it appear that we are mainly to assign the just appreciation of one of the greatest boons ever conferred on humanity—such being the mysterious modes often adopted by Providence for the revelation or dispensation of infinite goodness! Means, however, were still wanting to execute the plan which had been devised of extending this blessing to the poor, and these were supplied on the coming into power of Turgot, the wise, the liberal, the beneficent minister of the French treasury. Enough, perhaps, has been said to show that this, in common with every other improvement, wheresoever it may emanate, was eagerly received, and skilfully pursued by our own, in the proper sense of the term, truly enlightened country, whose mind has never been perverted by vulgar prejudice, or weakened by fearful superstition, or its determinations thwarted by aristocratic influence, or the power of antiquated corporations, or that of government itself, so perniciously felt in the old world.

As inoculation is a voluntary proceeding, it may be so regulated generally, as to time and other circumstances, as to ensure the most favourable results.

The mild weather of spring or autumn affords the best season, and not an age earlier than six months should be preferred. Children of debilitated or vitiated constitutions are to be excluded, except where a strong necessity exists, and the same restriction applies, indeed, to individuals of every period of life. Milder is the disease in early than adult or more advanced age.

The preparation of the system, so called, was once deemed of the utmost importance, and the same notion, even at present, is by many entertained. The practice consisted in a great reduction in diet, the avoidance of all heating or stimulating causes,—in bleeding and purgation, and, lastly, in a mercurial or antimo-

nial course of ten or fifteen days, or for double this period. There was, too, to use the somewhat exaggerated language of Jenner, "bleeding till the blood was thin, purging till the body was wasted to a skeleton, and starving on vegetable diet to keep it so." Excepting the omission of mercury, and commencing the other preparatory measures, subsequently to the act of inoculation, the same restricted and medicated plan continued, for the most part, to be pursued.

By some very able practitioners, however, the utility, and even propriety of this sort of preparation, are utterly denied. Being in a sound state, the system, it is maintained, will more effectually bear with, or resist a morbid attack, than when the order of health is partially subverted, which it must be by the disturbance it receives from the action of medicine, or any sudden change in the habits of life.

The correctness of this doctrine in its general application, as well as in relation particularly to the case before us, I think is amply confirmed. Cullen says:—"I doubt, on the whole, if inoculation derives any advantage from those pretended preparatory courses of medicine." Baron Dimsdale, Sir George Baker, Fordyce, &c., hold the same language, and, in this view of the subject, most of our practitioners acted when inoculation was common among us.

Let it not, however, be understood, that the doctrine goes so far as to deny the necessity of an alteration in a course of living, of undue indulgence, or of any other bad habits. The constitution, under such circumstances, is already vitiated, and before it is infected by the disease, ought to be rectified.

Consequence was also attached to the procuring of matter from a mild case. But it having been ascertained that this has not the slightest influence, it came to be disregarded. The most lenient and distinct small-pox will produce the confluent and malignant, and conversely,—the result being dependent on peculiarities of constitution, or the mode of treatment, or some other adventitious cause.

That a contrary opinion has been maintained, must not be concealed, and I shall cite the strongest fact I have met with to sustain it. By Adams, then physician to the London small-pox hospital, it is related, that, adopting the notion of the power to mitigate the disease, by successively inoculating from the

mildest cases, he accordingly made the experiment, and, as he says, ultimately attained complete success. His plan was to select the virus from a peculiarly benignant variety of it, which he occasionally met with, having an eruption of a pearly-like appearance, attended by very slight constitutional disturbance, and thought that, after a long train of breeding, he had firmly and immutably fixed it as a milder stock from which to propagate. This statement, could it be received, would be entitled to great weight. But without impeaching its truth, it seems to involve a consideration, which goes far to its invalidation, or at least, to cast over it a very dark shade of doubt. It will be perceived, that the experiment was made with a form of the disease, whose identity with genuine small-pox does not appear to have been adequately made out or verified, and, at all events, as we hear of no confirmation of it, we may presume that it proved fallacious.

In the act of inoculation, the virus is inserted under the cuticle, or rubbed into a small incision by a lancet. The other modes once practised, such as the application of a small piece of thread, previously drawn through a pustule, or soaked in the matter, to a scratch, and confined by strips of adhesive plaster, were finally abandoned. Greater security being thought to be given by a multiplication of infected points, this course was pursued to the extent of two or three inoculations on each arm. Camper, however, having demonstrated, by a series of cautious experiments, that a single puncture was as effective, producing as large a crop of pustules, and affording equal protection, as any number up to seven, which was the highest he deemed necessary to try, we became content with a solitary inoculation. But, though the quantity of virus used be of no consequence as to the specific effect, care should be taken, not unnecessarily to enlarge or irritate the wound, as common inflammation may be set up, by which the design of the operation is defeated, and a troublesome sore ensue in its place.

On the third, fourth, or fifth day, the inoculated point begins to inflame, and at this time is merely a small red speck, which progressively increases, till the close of the seventh day, when the constitutional symptoms manifest themselves. Be it again remarked, as deserving of attention, that there is a material difference in this respect, in the two forms of the disease. The

system becomes affected, as we have seen in the inoculated, on the seventh and on the fourteenth day, in natural small-pox. It teaches us that, where an individual is exposed to the infection, its operation may be superseded by inoculation, and a milder disease substituted in place of that which might otherwise take place.

The inoculated disease makes its incursion by the ordinary concomitants of pyrexia, with the addition of soreness and incipient tumefaction in the axilla of the affected arm. Great difference, however, exists in the degree of constitutional disorder. It is sometimes so slight as hardly to be perceived, while, on other occasions, it is considerable, and does, though rarely, present the utmost gradation of violence. The case, in its progressive evolution, being very similar to that of the natural disease, the history of it need not be recapitulated.

Of the treatment, it may suffice to state that, when mild, little is required to be done, and in the more vehement or malignant forms, which I have said seldom occur, the course to be adopted is such, as has already been suggested, under like circumstances of the casual disease.

But here a question arises, involving the no less momentous consideration than what are the signs, or criteria, by which we are to determine in the case of inoculation, whether the system has been so affected by the process, as to have its susceptibility destroyed to future attacks. Exceedingly difficult is it, on this point, to arrive at any satisfactory conclusion, or definite and secure course of proceeding. In the later periods of inoculation, a common conviction prevailed among practitioners, that a distinct pustule, with swelling in the axilla, and some febrile movement, afforded sufficient evidence of the constitutional affection, and they acted accordingly in practice. The late Professor Rush, especially, inculcated this doctrine. Not a few have gone so far as to maintain, that an unusually violent attack, instead of doing away susceptibility, is rather to be construed as an indication of the endurance of such a portion of it as to endanger a future recurrence of the disease. We are, indeed, told by Sir Gilbert Blane, "that all the well-authenticated cases of secondary small-pox on record, have been of persons who, in the first instance, had it severely. Where such facts are to be found in any number, I do not know. The only instance of the kind I can now

recall, is that of Louis XV., of France, who, in advanced life died of a secondary attack, having had the disease in childhood so severely as to have left his face disfigured by pits and other marks. The observation, I suspect, is without confirmation. Neither of these views is true. Many cases, at least, there are, even when the disease is naturally acquired, where an infinitely stronger impression is necessary to afford an adequate protection, and especially during an epidemic prevalence of the disease. The early writers, their immediate successors, and down to comparatively modern times, hold this language, and are filled with admonitions against a reliance on too slight an affection. By them it is reiterated, that even a considerable eruption running regularly through its stages, and still more so in the anomalous forms of the disease, whether natural, or artificial, does not, in all instances, furnish the requisite security. That a contrary opinion was held by some cannot be denied, and more especially by those who, in the enthusiasm of the moment, were desirous to enhance the value of inoculation.

Devoted to the cause, and blinded by the spirit of controversy, they overlooked all difficulties and objections, and presented the case in the most favourable aspect, contending that the slightest affection was adequate to the end, so completely removing all susceptibility, as to preclude for ever the danger of any repetition of attacks.

We now know this to be the illusive language of mere votaries, and that a careful practitioner will not fail, in suspicious cases, to renew the operation, at some short interval, as a test and a safeguard.

VARICELLA, OR CHICKEN-POX.

The first of these titles is the diminutive of variola, expressive of a slighter degree of that disease, and the second was probably conferred from the resemblance of the varicellous affection, to a similar one in chickens. The poultry of England, according to Jenner, have such an eruption—and he further states, that “in Bengal, they are subject to a disease very like small-pox, which prevails epidemically, and is very fatal. Chickens there are inoculated to preserve their lives.”*

* Baron's Life of Jenner, p. 237.

Early was it remarked, in the history of small-pox, even by Rhazes, that certain exanthematous affections, analogous to it, occasionally appeared, which afforded no protection against that disease. These were subsequently described, about three hundred and eighty years ago, by Vadius, under the title of chrystalli or chrystalline pock, by reason of the vesicular, rather than the pustular nature of the eruption—and, from that time, a pretty regular account of varicella has been transmitted. By Sydenham, it is especially noticed, as a spurious variety of variola, and such seems to have been the view commonly entertained of it. But it is probable, that the popular notion in relation to the affection was otherwise, since various vulgar epithets, implying a distinction, were invented in the different countries of Europe, and among these, the English terms, chicken-pock, swine-pock, and hives. Fuller, indeed, acknowledges, in his work, printed in 1730, describing the eruption by this title, that he borrowed it “from the nurses.” Contemporaneous writers adopted the same designation, and, henceforward, it is everywhere to be met with.

The first scientific examination of the subject, however, was by Heberden, who, in a paper published in 1767,* contended, with great force of argument, that varicella depends on a contagion, specifically different from that of variola, and clearly pointed out the difference in the two diseases, which came to be the universally received doctrine till, recently, its validity was questioned.

An attack of varicella is marked by few peculiarities. Commencing, as most fevers do, and continuing in various degrees of severity, till the expiration of the second or third day, the eruption begins to be disclosed. Yet, for the most part, the fever is moderate, and attracts little or no attention. The eruption is, usually, vesicular, appearing on the face, next on the breast and back, and ultimately on the extremities,—occasionally preceded by a rash, which is attended by some itching or tingling. It comes out in successive crops, so that some of the vesicles are matured,—some shriveled away, and some just emerging, thus presenting every stage of progression, and this consecutive train may be maintained for several days. “They are, according to Willan, about the size of a split pea, perfectly transparent, covered simply by the cuticle,—and, when the eruption is

* *Med. Trans. Coll. Phys. London, vol. i.*

copious, the body has the appearance of having been exposed to a shower of boiling water, each drop of which had occasioned a minute blister." There are, however, varieties in the configuration of the vesicles, which were early recognized, and discriminated by the popular names of chicken-pox, swine-pox, and hives,—and since, more classically entitled, lenticular, conoidal, and globate varicella.

To Bateman and other writers of easy access, by whom all the peculiarities of these modifications of the disease have been minutely indicated, I must refer for such information. It may be succinctly stated that the eruption, thus, undoubtedly, diversified as to shape, is sometimes, also, characterized by an earlier or later appearance, by its being oftener purely vesicular throughout its existence, though, in other instances, more pustular, as well in figure as the contained fluid—that, without any secondary fever, it begins to dry and scab, in the order of its successive occurrence, the whole falling off by desquamation in four, six, or eight days, seldom leaving any pits or other vestiges. Contrary to the tenour of authority, which represents the most common appearance of the eruption to be vesicular and globular, I am sure that I have seen it much more frequently with seropurulent than thin, serous, or lymphy contents, and of an acuminated shape, the point soon breaking off, resembling in the whole a truncated cone.

But, though such are the ordinary aspects and course of varicella, it occasionally exhibits itself very differently. The fever is infinitely more vehement, the local affections of the stomach, lungs, and brain, correspondently heightened, and the case, as well in the character and extent of the eruption as other features, approaching very closely to small-pox. Epidemic varicella, of this exasperated nature, has more than once occurred abroad, and sporadic cases of a similar kind are familiar to us in this city. I have repeatedly seen such, where the eruption was all over the body, as thickly as well could be, and very many of the pustules umbilicated.

That varicella belongs to the class of diseases proceeding from a specific infection, is not disputed. But whether this be distinct, or the same as that of variola, is a point still under discussion ;—and the progress of opinion, in relation to it, has been already adequately traced. By Professor Thompson it is, that the views,

as settled for a time by Heberden, have been endeavoured to be reversed or overthrown, to revive again the ancient notion that varicella is really modified small-pox. To this conclusion he was led by a very attentive observation of the phenomena of the epidemic variolous disease, at Edinburgh, in 1818, and confirmed by an elaborate research into the subject. Expressed in a few words, these are his arguments:—

1. That varicella and variola may each communicate the other by a subjection to their respective contagions, by inoculation, or through the atmosphere.
2. That neither disease ever prevails epidemically, without the other being at the same time observable.
3. That varicella never shows itself, except in persons who previously have had variola or vaccinia, and hence, that it is the product of the variolous virus operating on a system thus modified.

Confessedly these positions are sustained by an immense mass of facts, and a chain of very cogent and plausible reasoning. Yet few converts have been made to them, and the weight of authority still decidedly preponderates in favour of what was antecedently considered as the established doctrine.

Let us next see how this side of the question is supported, and, to attain greater perspicuity, I shall take up the adverse positions just mentioned, in the order in which they are presented.

1. It is replied that it is exceedingly difficult, while the two diseases are simultaneously prevailing, to assign the origin of a case of the one to the infection from the other, as the contagion of both is diffused at the same moment through the atmosphere. Nor is it true that the two diseases can be mutually produced by inoculation. The virus of variola causes small-pox only—and it is altogether doubtful whether varicella be capable of propagation in this mode. Experiments, which go to prove it, are contradicted by a host of an opposite description, and it is not unreasonable to presume that, in the few successful trials alleged, the matter procured was variolous. On this point the language of my friend, the late Mr. Bryce, of Edinburgh, a most respectable authority, is very decisive. It is stated by him, “that he has taken lymph from the vesicles of true varicella, with the greatest care, at all periods of the disease, and all seasons of the year—that he himself has inoculated, and seen others inoculate with it, children who had never undergone either small or cow-pox, to

the number of thirteen, yet in none of these was this disease, or any thing like small-pox, ever produced."

2. That the allegation of the uniform simultaneous prevalence of varicella and variola, is not borne out by the history of the diseases. The fact is that, though they do occasionally co-exist, the reverse oftener happens. Much proof might be adduced of their separate and independent prevalence. Enough, however, may it be to state, that we are assured, that from 1809 to 1823, varicella was annually observed at Copenhagen, without variola, and that it is well known, for quite as long a period, the same happened in this city.

3. That it is erroneous to suppose that varicella cannot exist in a system which has not undergone the variolous or vaccine infection. Common experience denies it. Examples of the kind were very familiar prior to the introduction of vaccination, when the unprotected system was more frequently to be met with, and are still sometimes witnessed.

To the preceding objections to the hypothesis I am combating, it may be added, as calculated further to its invalidation, that vaccination, when practised subsequently to varicella, pursues its ordinary course, which it does not after small-pox,—that varicella undergoes no change in a system modified by the influence of vaccinia or variola,—that the varicellous and varioloid affections are not the same, which they ought to be according to this doctrine,—and finally, that varicella, with few exceptions, is distinct from small-pox, in the character of the eruption, the prelusive and attendant symptoms, and in every other material respect.

The disease occurs so exclusively in infancy and childhood, that some have denied its existence at all, in adult or more advanced life. But this, perhaps, is going too far, as Willan, Gregory, and others of our best authorities, have observed the contrary, though the instances on record, well authenticated, are extremely few. The question, at least, may be considered as not satisfactorily determined. Existing sometimes sporadically or sparsely, it much more commonly prevails epidemically, under which circumstances, it makes a wide sweep, among children, running through whole families, or the larger collection of them in schools.

Enough, perhaps, has already been said of the discriminative signs of this and the variolous affection, in their customary pre-

sentations. Both, however, as previously stated, are liable to anomalous deviations from their normal characters, in which they sometimes become so assimilated as seriously to obscure the diagnosis. Greater difficulty still is experienced in this respect as to the varioloid disease. These two eruptions are very frequently, indeed, in all their features, apparently identical, and receive from the attending physician the one or the other designation, as may suit his views at the moment.

As little have I to remark relative to the prognosis in varicella, and still less of its anatomical phenomena and pathology. These are points which may be safely left to be inferred, from facts incidentally noticed in the progress of the inquiry. That varicella is one of those eruptions in which the system loses its susceptibility to a second attack, or, if such occasionally happen, it must be deemed an anomalous departure from the tenour of its character, seems indisputable. All which I deem of importance in the history of varicella has been given. As to the treatment of it, scarcely any thing is usually required to be done, and when it assumes a graver aspect, a course similar to that in mild small-pox may be adopted.

VARIOLÆ VACCINÆ, OR VACCINIA, OR COW-POCK.

It is a very curious fact, showing how nicely balanced, in some instances, are the dispensations of Providence, that hydrophobia and vaccinia, the only diseases authentically derived from the brute creation, should exercise so different an influence over mankind. They are the antagonizing powers of evil and good —the one the cause of terror, and too frequently of inevitable death, and the other a source of comfort, and the means of the preservation of life. For though the latter is

“Like the toad ugly and venomous,
Wears yet a precious jewel in its head.”

Confiding in accounts merely traditional, or resting on authority quite as questionable, it might be concluded, that, as a preventive of small-pox, the process of vaccination had been immemorially known in some of the oriental countries.

On its introduction into China, from Europe, in 1810, such

a claim to priority was at once preferred by one of their writers, who declares, that he finds the practice in a very ancient Chinese work. Cow-pox, he says, originated in a fly, which, fastening on the cow, sucks the blood, till it falls off—the blood of this fly, being then used to impart the disease, by inoculation, to the human species. More plausibly is it asserted, that the practice had been adopted for upwards of a century in certain parts of England, Wales, and Ireland, antecedently to the formal promulgation of the fact. Entitled to still greater attention than these fabulous or vague reports,—though also without confirmation, is the averment that, in anticipation of this event by a few years, a case of successful vaccination had been communicated to Sir George Baker, then a distinguished practitioner of London. Conceding, however, to it, and to all other pretensions, the credit which can reasonably be claimed, it is still manifest, from such seminal hints, no material advantage was gained.

To Edward Jenner, of England, is due the honour of having introduced and established this momentous discovery, so interesting to medical science, and replete with benefits to mankind.

He had, in the commencement, to encounter difficulties, and to resist various attempts, open and disguised, to despoil him of his well-earned laurels. Convinced, ultimately, however, of the validity of his titles, these were sanctioned by the British Parliament, after the most deliberate investigation—and, as a reward, he had voted to him the sum of thirty thousand pounds sterling.

In 1768, while Jenner was a student of medicine, residing in Gloucestershire, he heard of the prevalence of an affection on the udder of cows, of a pustular nature, which occasionally infecting the hands of those who milked them, produced a correspondent affection, proving a preventive of small-pox, as well in the natural way as by inoculation.*

Deeply impressed with the value of the intelligence he had collected, Jenner repaired to London, to prosecute his studies

* Not uninteresting can it be here to mention, that I have been told by Dr. Neil, of this city, that much about the same period, and certainly without any information from abroad, his father, who practised physic on the Eastern Shore of Maryland, was in possession of essentially similar facts. It has also been rendered probable, by M. Husson, that a certain M. Robant, Protestant minister at Montpellier, in France, had so early as 1781, made some verbal communications to several persons, indicating considerable knowledge of the subject.

under the auspices of John Hunter. During the period of their connection, frequent conversations were held between them, regarding the cow-pock, and its reputed properties. Engrossed, however, with other occupations, the preceptor was without leisure, or did not deem the matter worthy of his immediate attention. Having returned home, after a considerable interval, Jenner resumed his favourite investigation, which he steadily pursued, till the consummation of his mighty and marvellous discovery. This took place on the 14th of May, 1796, which is held to be the birth-day of vaccination. It was on that day, says his biographer Barron, "that matter was taken from the hand of Sarah Neimes, who had been infected by her mother's cows, and inserted by two superficial incisions into the arms of James Phipps, a healthy boy of about eight years old. He went through the disease apparently in a regular and satisfactory manner. But the most agitating part of the inquiry remained to be performed. It was needful to ascertain whether he was secure from the contagion of small-pox. This point, so full of anxiety to Jenner, was fairly put to issue on the 1st of the following July, when inoculation with variolous matter, immediately taken from a pustule, was practised without any infection." But though, having thus experimentally determined the fundamental principle of his discovery, he still sedulously proceeded to perfect it by the investigation of details, or of collateral matters, calculated to illustrate and confirm it.

The points which he thought he had ultimately demonstrated were, that the cow-pock was readily imparted to the human species by inoculation, to be passed from individual to individual, without deterioration or change, giving an immunity against small-pox,—it being itself a very mild affection, entailing no pernicious consequences, and utterly destitute of the quality of infection through the medium of the atmosphere, or of communication in any other mode than the one stated.

Entirely satisfied of the accuracy of his conclusions, he resolved to lay them before the public through the transactions of the Royal Society of London. That learned body, however, placed such slender confidence in his representations, so extraordinary did they appear—that his paper was returned, with a friendly admonition to withhold it from the press, lest it should injure his reputation. Happily, the advice was not followed—and in 1798,

twenty years after the commencement of his inquiries, he published, in a small pamphlet, in a style the most modest, his great discovery. From this period, vaccination came progressively to be diffused throughout the civilized world, meeting, in different countries, various degrees of resistance, according to the extent of prejudice against it, or the inefficiency of exertion in its behalf.

More at home, however, than elsewhere, was it assailed by vulgar or illiberal abuse, pretty much in the mode previously pursued in regard to inoculation. Conspicuous among the anti-vaccinists was Mosely, advantageously known by his writings on tropical diseases, whose hostility amounted to fanaticism. Determined in his opposition from the first, to the practice, he ultimately issued a small tract on the subject, in which, amidst other extravagant absurdities, he ventured the prediction that, "by the influence of bestial humours, imparted in the process, the 'human form divine' would become degenerate, and another brood of Minotaurs produced."

"Semibovemque virum, semivirumque bovem."

Mosely had occupied a considerable position in the professional and social relations of London, and his perpetration of such folly created much surprise. But, as I have heard, he was actually insane at the time. From the patronage of the Duke of York, he had lavished on him the practice of the court, and higher circles, with the lucrative sinecure of physician to the Chelsea Hospital. Thus, as he was basking in the sunshine of prosperity, an incident occurred to blight his fortunes. The Duke having a cold, sent for Mosely, to consult him on the safety of his going out to review a body of troops lately returned from the Egyptian expedition, who protested against his leaving the house.

"The dawn was overcast, the morning lower'd, and
Heavily in clouds brought on the day."

Nothing, however, could restrain the ardour of the hero, and while on the *deluged* field, he broke out with measles, and became very ill. The physician was charged with criminal ignorance, for not having promptly discerned the nature of the inchoative disease that jeopardized the life of his royal highness, and was instantly punished by deprivation of all his privileges, honours, and appointments. Calamities so heavy, and unex-

pected, were insupportable. His mind gradually gave way under the pressure of grief and mortification, and, while in a state of hallucination, this unhappy production escaped from it. Not long afterwards, he died in poverty, obscurity, and confirmed madness :

————— “ O, how wretched
Is that poor man that hangs on princes’ favours !
There is, betwixt that smile we would aspire to,
That sweet aspect of princes, and their ruin,
More pangs and fears than wars or women have,
And when he falls, he falls like Lucifer,
Never to hope again.”*

But, though subjected to this and some other annoyances proceeding from individuals of greater responsibility, actuated by ignorance, envy, or malice, Jenner was encouraged and sustained by the applauses of the better part of his profession, the countenance of his sovereign, the liberal rewards of Parliament, and the gratitude of mankind. Many of the most eminent personages of the period courted his personal acquaintance, and nearly every learned association enrolled him among its members, or bestowed on him its honours. Not to swell the catalogue of his titles, he was elected into the Royal Society of London, the National Institute of France, and the American Philosophical Society,— and received the degree of Doctor of Laws from Oxford and one or more of our own universities. Both hemispheres united in rendering him its grateful homage.

Napoleon himself, at the height of his glory, bowed to the supremacy of his merits, in an offering of a tribute to them deserving of preservation, from its moral beauty. It happened that, among the Englishmen detained at that moment in France, in retaliation of an act of hostility of the British government, which had engendered the most envenomed feelings, there was a nobleman of great distinction, for whose release very strenuous efforts had unavailingly been made. As a member of the National

* The above anecdote I give on the authority of a person entitled to confidence. Part of the statement I know to be true. In the fall of 1801, I was on Wimbledon Common, near London, on the occasion of the review, saw the duke exposed to a heavy rain for several hours, read the daily bulletins of his illness and it was generally said about town that Moseley had been dismissed and degraded, for the very reasons mentioned. The anecdote is communicated to vindicate, not to insult, the memory of a man of no common merit.

Institute, it was thought that Jenner, from his powerful influence, might, through that body, effect the object, and, accordingly, by request, he made the application. The Institute, however, was impotent without the emperor's approbation, and, therefore, addressed him on the subject, whose memorable reply was: "That, which I would not grant to the prayer of embodied Europe besides, I will concede to the wishes of the most illustrious benefactor of humanity. It shall be done."

"The hero's brows unfading laurels twine,
The civic crown, O Jenner! shall be thine."

Early adopted in the United States, and with little or no division of sentiment as to its utility, vaccination was speedily spread over the whole expanse of our territories. To the late Dr. B. Waterhouse, of Boston, and Dr. J. R. Coxe, of this city, the first two to engage in the enterprise, and the most zealous in its promotion, the principal credit of this achievement is due.*

Of the origin and nature of the vaccine virus, we are not precisely informed. It has been seen that Jenner first detected it in the udder of the cow. But he advanced the conjecture that a remoter source of it might be found in a sort of icherous humour of the horse's heel, vulgarly called the grease, which the cow received by milkers previously handling the feet of the horse. This explanation seemed to him the more probable, as it is customary, in many parts of England, for men to perform the double office of grooms and milkers. The account given of this fluid is too curious to be omitted. He says, "the skin of the horse is subject to an eruption of a vesicular character, which vesicle contains a limpid fluid, showing itself most commonly in the heels. The legs at first become œdematos, and then fissures are observable. The skin contiguous to these fissures, when accurately examined, is seen studded with small vesicles, surrounded by a small areola. These vesicles contain the specific fluid. It is the ill management

* From a letter of Waterhouse to Jenner, lately published, I find that he endeavours to arrogate to himself the whole merit of the introduction and establishment of vaccination in the United States. Especially does he aver that nothing was done for the cause in Philadelphia. This is not true, and he knew it was not true when he declared it. Coxe, especially, had eminently distinguished himself by the earliest, most persistent, and successful efforts in the cultivation and promotion of the subject. Waterhouse, I am afraid, to borrow one of his own words, was not a very *reliable* man.

of horses in the stable that occasions the malady to appear more frequently in the heel than other parts. I have detected it connected with a sore in the neck of a horse, and on the thigh of a colt."

Experiments soon made by Coleman, the well-known veterinary surgeon, led to an inference opposite to the one of Jenner, and which was supported by some very respectable authority. But Jenner, in reply, affirmed that he had used the equine matter with complete success—and several others to whom he had transmitted it, as well as some deriving it themselves directly from the horse, declared that they had propagated from it the vaccine pustule in the human subject, capable of protection against small-pox. Granting these facts, his deduction from them is not warrantable. They only prove the identity of the virus in the horse and cow, and not at all the priority of the origin in either animal. Equally, almost, might a claim be set up for the goat, sheep, and poultry, in each of which the pustule is said to have been observed. Nor is proof wanting of the susceptibility of the ass and the dog to the disease—a pustule having been excited in each, supplying a virus causing the same affection in the human species.

As regards the disease in the cow, it was the opinion of Jenner that it is merely a local affection confined to the udder, showing itself chiefly on the nipples in the form of irregular pustules. These, at first, are of a palish blue colour, or, sometimes, approaching to lividness, surrounded by a sort of erysipelatous inflammation, occasionally degenerating into phagedænic ulcers. The disease is of rare occurrence, and never appears except when cattle are collected in large herds, and then breaks out at very uncertain periods among them, without any obvious or well-ascertained cause. The infrequency and transient nature of its prevalence are such, that Jenner was constantly interrupted in his inquiries from the difficulty of procuring fresh supplies of matter. During the year 1828 the National Vaccine Institution of London, though they diligently sought it, could not hear of it in the cattle of England. But, in 1830, it was reported to have been found in the cows of Italy, and again, two years afterwards, among those of India. It reappeared in France and Germany in 1835, and the succeeding year in Britain. There is reason to suppose that, at present, it is once more extinct in Europe.

Whether it is now to be met with in the United States, or has been for the last forty years, is doubtful. Formerly it seems to have existed in our cattle. No evidence is there, within my knowledge, of its ever having been detected in our horses or other animals, with the exception stated.

By Jenner and his immediate disciples, it was supposed that the variolous and vaccine diseases were once the same, having received their present peculiarities by a transmission through the constitution of the human and bovine races. The very title, variolæ vaccinæ, which he conferred, sufficiently expresses this hypothesis.

That horned cattle, at one period, were liable to an eruptive fever, bearing a resemblance to variola, is rendered probable by some very curious facts, which were unknown to Jenner, or, at least, they are not mentioned by him. This disease, I believe, was first described by Fracastorius, early in the sixteenth century,* as prevailing among cattle throughout the Papal dominions, and to which he gave the title of *lues bovilla*. By Ramazzini it is noticed as recurring in 1690, and again in 1711—and, also, by Lancisi, each of whom has recorded it as existing in Lombardy. They endeavour to prove, by quotations from the ancient historians, Herodotus, Livy, &c., and the poets, Lucretius, Virgil, Ovid, &c., that it was recognized even in such remote times.

My limits forbid me to borrow more from these authorities, and which I the less regret, since their statements are corroborated by a more recent writer, who, perhaps, will claim greater credit. From a communication by Dr. Ledyard, to the Royal Society of London,† it appears that a similar disease, on different occasions, had broken out in England, and, in 1745 and in 1780, it very extensively pervaded that country. “The disease,” he says, “in horned cattle, is an eruptive fever of the variolous kind—it bears all the characteristic symptoms, crisis and event, of the small-pox—and, whether received by contagion, infection, or by inoculation, has the same appearances, stages and determination, except more favourable by inoculation, and, with this distinctive and decisive property, that a beast once having the sickness, naturally or artificially, never has it a second time.” Contemporaneously, or nearly so, it prevailed, likewise, in certain parts of France and Holland.

* 1514.

† Transactions, 1780, part i.

As recently as 1832, an analogous disease is described as having broken out, in a district of India, among cattle. "The animals appeared, for a day or two, dull and stupid. They were seized with a distressing cough, accumulation of phlegm in the mouth and fauces, and loss of appetite. On the fifth or sixth day pustules made their appearance all over the body, especially on the abdomen, accompanied with fever and much general distress. These went on to ulceration—the hair falling off wherever a pustule ran its course. The mouth and fauces appeared to be the principal seat of the disease—being, in bad cases, one mass of ulceration, which impeded mastication, and proved fatal, apparently, from inanition. The mortality, in this severe epizootic, was calculated at from fifteen to twenty per cent."*

That no experiments were made to determine more precisely the nature of the disease is to be regretted.

From these facts it has been conjectured with some plausibility, that as vaccinia had not existed, or been recognized long before Jenner's attention was attracted to the subject, it might have been the remains, in a mitigated state, of the former more general epizootic affection described by Ledyard. This inference is countenanced by the consideration that epidemics become milder by lengthened continuance, and it is not inconceivable, in this very case, that what was originally a violent eruptive fever, may have finally been softened down into simple vaccinia.

Even stronger proof have we of the identity of the two diseases. Gesner informs us, that by inserting variolous matter into the udder of cows, a pustular affection was induced precisely like that of cow-pock, and we learn from Sunderland, of Bremen, that, on covering cows for several days with the sheets of patients under small-pox, the disease broke out in these animals. It has, too, been stated by Ozaman, of Lyons, that if the variolous matter be mixed with fresh cow's milk, so as adequately to dilute its virulence, it induces, by inoculation, an eruption similar to that of the vaccine pustule, and, as conclusive of their identity, the virus taken from one of these pustules, causes the genuine vaccine affection, furnishing complete security against small-pox.

To the accuracy of these reports, M. Robert, of Marseilles, has attested, and who adds, that a mixture of the variolous and

* Cyclopaedia of Pract. Med., vol. iv., p. 405.

vaccine matter with milk, will at once excite, on inoculation, the local vaccine pustule without, as in the other instance, occasioning at first, a more general eruption. Not having seen these publications, and indeed, only an incidental notice of them, and being wholly unacquainted with the authors, I am incapable of appreciating the evidence on which the statements rest, or the degree of personal authority to which the writers are entitled. They are, however, curious, and ought to be subjected to further and decisive trials. Experiments of the kind were, indeed, more recently repeated by Mr. Ceely, of England, who states positively, that by passing through the system of the cow, the variolous is converted into the vaccine disease, and in demonstration of which, appeals to the fact that the virus, thus generated, has all the properties of that procured from a vesicle in the human subject, as well in appearance as reality, it equally protecting against small-pox.

Not very susceptible, however, does the cow appear to the infection. Twice only did he succeed, after many fruitless efforts. Five vesicles were only produced, from which source, several hundred persons were vaccinated, who exhibited all the phenomena of that process, in the most perfect form and degree. No eruption, or any other circumstance, led him to suspect that he had not propagated genuine variolæ vaccinæ. The lymph was transmitted to several other individuals who, on trial of it, experienced similar results. He, moreover, succeeded in imparting, after many disappointments, by what is termed retroinoculation, the vaccine disease from man to the cow. The virus loses some portion of its activity, the vesicles rising slower, and are smaller, recovering, however, ultimately its power, by successively repassing through the human system.

This is all very specious, and may be true. But why has it not been absolutely verified? Five or six years have elapsed since the discovery was proclaimed, and we hear no more about it,—though, nearly the whole time, there has been the greatest demand for new matter, and the most eager curiosity excited by every thing relative to vaccination!

Those, on the contrary, who deny the primitive identity of the variolous and vaccine affections urge that, independently of the striking difference in them, as they now exist, in general character

and physiognomy, there are some facts which give a downright refutation to the hypothesis.

1st. It is said that variola is peculiar to the human species, all perfectly authenticated efforts to infect brute animals with it having failed. The celebrated Hunter, and some others more recently, it is understood, did not succeed in their repeated attempts to do it. Woodville, an unquestionable authority, says, "that in the various attempts I have made to communicate the small-pox to animals, as dogs, rabbits, poultry, &c., both by the ordinary way of inoculation, and by injecting variolous matter into the veins, no disease was produced."* But we are assured by M. Vibourg, Professor in the Veterinary College, at Copenhagen, that he communicated small-pox with virus taken from the human subject, to dogs, apes and swine, and that the same had been effected at Berlin as to cows. These reports, it will be perceived, are inconsistent with those from similar experiments already cited, where the product was the vaccine and not the variolous disease—and on a subsequent trial of covering cattle with the sheets of variolous patients, fully impregnated with the contagious matter, it turned out an utter fallacy.

To decide, where statements are so contradictory, and we are without an adequate opportunity to ascertain all those circumstances so indispensable to the constitution of genuine testimony, is difficult. It has been pronounced, by a distinguished judge of our own country, that no man's evidence, in a complicated transaction, is deserving of implicit credit without a *cross examination*—and I am persuaded there are few more just aphorisms. Common experience teaches the fallibility in this respect, and we are aware that circumstantial proof, where the chain is long, and each link confirmatory, is held in courts of criminal judicature to be entitled to greater weight than any single declaration, however positively made. There is in philosophy a rule of evidence more pertinent to this case, which alleges, that in all instances of prodigies, or wide deviations from the order of nature, or of events opposed to the tenour of general observation and experience, it is safer to conclude that the relator intentionally falsifies, or is deceived, than that such occurrences had actually taken place. Tried by this principle, we should be led

* Woodville's History of Inoculation, note, p. 3.

determine against the averments of the susceptibility of animals to the contagion of small-pox. Those domesticated or reclaimed are nearly as much exposed to it as man himself, and who among us has ever known of any of them having been so infected? As in law, a man is presumed innocent till he is proved guilty, so in medicine, it were well that no fact or doctrine should be received without the clearest demonstration of its verity, and by *cumulative* testimony,—that furnished from different sources.

2d. That the two diseases are not capable of intermixture, each preserving its peculiarities. Thus, it is found, that if inoculation be performed with the two fluids blended, sometimes the vaccine, and at other times the variolous disease will be excited, without the slightest change of character from the process.

3d. That, when these fluids are inserted separately, though so contiguously that a common pustule is produced, either the one or the other disease will be raised by inoculation, according to the side of the pustule from which the virus may be taken.

4th. That the two fluids being introduced at the same time, each proves effective to the evolution of the respective diseases. Yet, to a certain extent, their actions are reciprocally restrained—the pustules of each, the vaccine and variolous, being smaller, and proceeding slower to maturity.

These are the arguments by which the opposite views on this point are vindicated. The question may be considered still as *subjudice*, left open for decision on further and better evidence.

In the practice of vaccination, certain rules should be carefully observed, the first of which regards the period of life. Except under very urgent circumstances, the operation is not to be performed sooner than a month after birth, and it were well if further postponed. “The uncertainty of organization being complete, and the extreme delicacy and irritability of the new-born babe, are the grounds usually assigned for this advice.” It can scarcely be doubted that, at a very early age, the disease is less readily imparted, or that, from the great constitutional changes which belong to this period of existence, the vaccine impression, when received, may be more likely to be weakened or entirely destroyed, and hence, perhaps, one reason of the necessity for repeating the operation after a certain period.

Cutaneous affections of any kind, existing to some extent, the operation is inadmissible. Not easy is it, in this state of the skin, to get the virus to act, and, when it does, it is apt, as I shall presently show, to generate a mixed disease, devoid of the protective power. Even the sulphurous impregnation of the skin, which takes place in the cure of itch, we are told, by Jenner, prevents the vaccine infection. To this purport, he relates the fact of his inability to communicate the disease to a body of soldiers in this condition, whose surface being cleansed by the warm bath, they very readily received it.

Concerning the selection of the virus, much has been said. Foreign writers, including Jenner, seem to prefer the pellucid fluid, and urge the taking of it on or before the ninth day, or previously to its becoming opaque and purulent, or the areola being formed. That it is less active, after this time, is well established. It is, also, alleged to be more certain in its effects, and altogether better when derived from a child than a person at any more advanced age. I cannot determine the truth of this by any observation of my own. Common experience goes to show that it is incomparably more efficient in the fluid state, or before drying, which, indeed, is so much the case, that, after numerous failures of the operation with such matter, however recent, we almost invariably succeed with that immediately from the vesicle. The use, however, of the fluid has been, for many years, nearly abandoned in this city, and the scab substituted, to which we were led by the following motives:—

1st. It allows the disease to run its course, free from the danger of changing its specific character by any artificial interference or molestation.

2d. The virus embodied in the scab, by proper precautions, may be much longer preserved in some instances—even for a year or more, without vitiation or diminution of power.

3d. It supplies a larger amount of matter for an extensive propagation of the disease.

Notwithstanding these recommendatory considerations, I am not satisfied that we have done right in adopting the scab. European practitioners, of the largest experience, have entered their protest against it. By all it is admitted that the opaque or purulent fluid is far less to be depended upon than the pellucid lymph, and it is not to be conceived that the former, when dried into a

scab, should acquire any new, or regain additional efficacy. It will, too, be hereafter seen that, on the prevalence of epidemic small-pox among us, the failures of vaccination were infinitely more numerous than elsewhere, which may, with probability, be referred to this cause.

No one denies that there is a choice in the scabs. Those hard and compact, of a dark mahogany colour, and with a regular, well-defined margin, should be selected. The pale grayish scab, scaly or lamellated in its structure, with ragged edges, is always suspicious, very liable to fail, or if it infects, produces an illegitimate disease, impotent to any security against small-pox.

Employing the scab, the loose, fuzzy parts which lie on the inner surface, and attach to the circumference, are to be scraped off, and a small portion of the real solid scab is to be powdered and moistened, to the state of a thick or ropy fluid. As in the case of the pellucid lymph, this may be inserted into a small puncture or scratch, or what succeeds better, to lay it on the skin, and work it in with the point of a lancet, taking care not to penetrate so deep as to occasion bleeding, which is apt to defeat the operation, by diluting the virus to inertness, or more likely by washing it away.

Nearly always the incision heals, so as scarcely to leave a vestige—any appearance to the contrary, denoting common inflammation, instead of the specific action of the virus. The infection succeeding, there may be usually seen on the close of the third, or the beginning of the fourth day, a small red speck, somewhat elevated, which, on pressure, imparts to the finger the sensation of its enclosing a grain of some hard substance. This minute pimple gradually enlarges—and about the sixth day, a small vesicle is formed out of it, having a round or oval margin, flat surface, with a slight indentation in the centre—is of a pink colour, which changes to a deeper red, with a mixture of blue, and is darkest in the middle. There is at the same time, thrown close around its base, a narrow efflorescence like a ring. On the eighth, ninth, or tenth day, for the period is not very precise, the vesicle is changed into a pustule, and the areola becomes more florid, and of half an inch more or less in diameter. The pustule soon after attains its height, and the efflorescence, throughout its whole extent, is tumefied, in which state it continues for several days, then subsides and fades away. In the declination

of the pustule, the centre darkens first, and the whole, by degrees, is converted into a hard smooth crust, of a mahogany complexion. The crust drops off spontaneously, in the course of the third week, leaving a cicatrix.

This is the development of the local affection. On the expiration of the seventh day, in children somewhat advanced, or adults, or those still older, in whom there is usually most disease, the ordinary symptoms of fever are manifested, and sometimes even to a considerable height.

Yet these are generally slight and evanescent in early life, the only serious complaint being soreness and tumefaction under the axilla, which even in infants exist, and hence care should be taken that they be not raised up by the arms. .

Connected with the history of vaccination, there are one or two other circumstances deserving of notice. The local affection is sometimes very prompt in its development, and rapid in its career, appearing on the second day, and reaching maturity in four or five days,—though oftener the reverse, and especially as regards the slowness of its disclosure. I have known it to be postponed, in one instance, to the fourteenth, in another to the twenty-first day—and there is a third recorded, in which the period was extended to six weeks. Yet more extraordinary, in this last case, a second vaccination took effect, and subsequently the first one became completely evolved. An instance, too, is mentioned where the operation failing in a child, it was repeated in ten days successfully,—the disease going regularly through its several stages—and six months afterwards, the former one began to inflame, and finally presented a genuine pustule, leaving behind it a regular cicatrix.*

With few exceptions, there is a solitary pustule produced by the act of vaccination, and that at the point of the insertion of the matter. But occasionally we meet with a few vesicles of an imperfect character around the areola of the original or parent pustule. Cases also,—though very rarely, have been noticed, of a sparse and scattered eruption on the body. Thus we learn from the report of the Central Vaccine Committee of France, that in 1818—19, there was a considerable number of instances, in which many pustules occurred so completely formed, that matter

* Med. and Phys. Journal of London.

taken from them produced the genuine disease. An explanation of this phenomenon will be presently given in noticing the controversy between Woodville and Jenner, in the early history of vaccination, with regard to a similar event. Not improbably, at least, the two occurrences belong to the same category.

This, then, is a brief account of the legitimate form of the vaccine affection, with its occasional anomalies.

More, perhaps, than any other point, is it important to understand the diagnosis between the genuine and the spurious disease, and no great attention is usually required to decide it with proper discrimination. It may facilitate the comprehension of the distinctions between them, to bring the two affections into immediate contrast.

1st. In the legitimate disease, there is no evidence, ordinarily, of successful infection till the close of the third day, and then we are presented with a minute and elevated pimple, having a definite margin and flattened umbilicated surface. The spurious, on the contrary, shows itself, very soon, in the form of a phlegmon, with considerable inflammation and itching.

2d. The pimple, in the genuine disease, gradually increases till about the sixth day, when it is converted into a vesicle, containing pellucid lymph—retaining the same figure and construction—whereas, in the spurious, with its original phlegmonous character, it reaches maturity before this period, and becomes an abscess filled with pus.

3d. In the genuine disease, the vesicle changes to a pustule from the ninth to the tenth day, at which time it is surrounded by a very regular areola. But, long before this period, the abscess, in the spurious, has ruptured and scabbed, or degenerated into a ragged sore, and, in place of a defined areola, has about it a diffusive erysipelatous blush.

4th. The pustule of the genuine disease, when at its height, is round or oval, and elevated, with a perfectly definite margin, flattened surface, and a central depression, resembling a button mould bound tightly by the skin, to which it has, indeed, been compared. The reverse are the figure and condition of the local affection in the spurious, which now, and from the beginning, looks like a common fester or boil, being conical or pointed.

5th. Nor is the areola at all alike—in the genuine, swollen, circumscribed and well-defined, and, in the other, an extensive

erysipelatous blush, sometimes running up the arm to the shoulder, or there may be no areola whatever.

6th. An equal difference is perceivable in the cicatrix or scar, left behind. In the genuine, it is small, striated and cellulated, and very definite. That of the spurious, on the contrary, being scarcely perceptible, or very large, smooth, and polished, with irregular or ragged edges. As to the general or constitutional affection, the same difference exists. That of the genuine is, as already described, mild and regular in its progress—the spurious being the reverse, or exceedingly anormal, and by no means unfrequently of far greater severity.

No difficulty of discrimination could well be experienced, were the two states of the disease always orderly in their course, and thus strongly characterized. But it occasionally happens, from a feebler development, or some injury done to the vesicle or pustule, or by some other cause, its aspect and condition are so changed, as extremely to embarrass a decision regarding its nature and protective efficacy. Examples to this purport are found, especially in vesicles or pustules of much smaller than the usual dimensions, of a paler or more pearly colour, or wanting an areola, or with a very slight one, or, on the contrary, unusually extensive and undefined, like an erysipelatous suffusion, or so rubbed or torn as to be deprived of their distinctive signs. Cases of such ambiguity occurring, or, in short, where, for any reason, there is the slightest doubt of the success of the operation, it becomes our duty to repeat it without delay.

The prognosis is always favourable—no instance of death, so far as I know, having happened from the disease, or, indeed, of any danger attending it. The anatomical characters are, hence, confined to the pustule itself, and here I may refer to what was said in regard to that of small-pox, they being essentially the same in the two affectious—so far, at least, that, in each, there is the peculiar cellulated structure formerly described.

In the progress of this inquiry so much of the pathology of this disease has been given, that scarcely any thing remains to be added. I shall confine myself, indeed, to a single remark. Two views, I repeat, are still entertained of its nature. Conformably to Jenner and his disciples, it is, truly, variola disarmed of its violence, without losing any of its identity, by passing through the bovine system, and, according to others, directly the reverse,

or an original and totally distinct and independent disease, operating to the prevention of small-pox, by a species of counteraction or antagonism. Gregory is the most authoritative of those of the present day, by whom the latter doctrine is maintained, and which he has done with distinguished ability. The facts and arguments of the parties in the controversy, have been sufficiently detailed already to enable any one to form his own conclusion, and I shall dismiss the subject without a further remark.

Of the treatment of the disease, it may be observed that children are seldom so sick as to demand medicine, or even any material change of diet. Evacuations of the bowels by the mildest laxatives, and, occasionally, small doses of the dulcified spirit of nitre, or antimonial wine, I have found sufficient in the worst of their cases. But should an attack assume a more violent shape, which now and then, it is said, occurs in grown people, the management is to be conducted on ordinary principles, and by the customary means, suited to the particular indications.

The local affections, however, oftener call for attention. To allay excess of inflammation, cold water, or water and vinegar, or the diluted acetate of ammonia, or a weak solution of acetate of lead, or a saturnine poultice, may be applied—and to arrest or heal the ulcer, the common dressings are to be used. In some of these latter instances, however, I have found the blue mercurial ointment, or the citron ointment, or simple cerate with calomel mixed in it, singularly serviceable.

Nothing is required to prepare the system for the reception of the disease, or its subsequent purification, as is vulgarly believed, from the taint which it imbibes. This part of the subject I shall conclude, with advising that, after using all the precautions already directed, the patient is to be visited, on the appearance of the vesicle, at its maturity, in the pustular state,—and on its declination,—watching, to determine whether it goes through these several stages with regularity, and, finally, to examine the cicatrix.

The question may here be very properly asked, in consequence of recent and multiplied reports to the prejudice of vaccination, whether, on the whole, it is still entitled to confidence? Even in the season of its greatest triumph, allegations were made of the occasional failure of the process. But, perhaps, in

a fair estimate, such instances amount to little, and may be so explained, as not materially to affect the value of the practice. Different and far more serious objections to it have, however, since arisen, as will be hereafter shown.

The sources of miscarriage, incident to the process at all times, I shall endeavour to indicate. These are thought mainly, though not altogether, to proceed from the use of impure matter.

1st. The udder of the cow, we are told by Jenner, is liable to two species of pustules, bearing an analogy to each other—the one secreting genuine, and the other a spurious virus, having no preventive efficacy against small-pox. An ignorance of this fact led to some failures in the early period of vaccination. The illegitimate disease in the cow is characterized by nearly the same circumstances as in the human subject, both as to the local and constitutional affections.*

2d. The vesicle, in our own species, may be originally spurious from several causes, among which the practice of deriving virus from an individual who had previously undergone the variolous or vaccine disease. It was a common opinion, at an early period of vaccination, that the genuine vaccine pustule might be induced in a system thus circumstanced. The repetition of the process of vaccination was, indeed, as well as I recollect, recommended by Jenner himself, as the best means of transmitting the virus to distant regions. But the fallacy of the opinion has long since been exposed. As demonstrated by an infinity of trials, the vaccine and variolous matter has, on such a system, only the power of creating local inflammation, or, at most, a phlegmon, like that excited by other irritants or poisons. Once exposed to their specific operation, it loses, for a time at least, its susceptibility to their influence—or, if instances to the contrary occur, they are mere exceptions, not affecting the general principle. Labouring under the error to which I have alluded, practitioners did much to spread an illegitimate disease.

3d. The vesicle may be spurious, from its existing in a distempered subject. By Jenner, the power of certain cutaneous disorders over vaccination, was early detected, and has since been more particularly pointed out by some other writers. Bate-man says, “the most frequent cause of the deterioration of the

* Good, 395, vol. ii.

lymph, seems to be the presence of chronic cutaneous eruptions, or the concurrence of eruptive fevers or other febrile diseases. The chronic cutaneous affections, which sometimes impede the formation of the genuine vaccine vesicle, have been described by Jenner, under the indefinite term, herpes, and tinea capitis. But in the more accurate phraseology of Willan, they are herpes, (including the shingles and vesicular ringworm,) psoriasis and impetigo, (the dry and humid tetter,) the lichen, and most frequently the several varieties of porrigo, comprising the contagious eruptions, "as the itch especially." We are further told by Tierny, that ulcers, as well as recent wounds, are also mischievous in their tendencies.

Even slighter occurrences, in the opinion of Jenner, have an effect. Not long before his death, in 1821, he declared, in a circular letter addressed to the profession, that "mere abrasions of the cuticle, such, for example, as are found in the nurseries of the opulent, as well as in the cottages of the poor, behind the ears, and on many other parts, where the cuticle is tender," are pernicious in this way. "We find," continues he, "irregularity in the vaccine vesicle, if the skin is beset with herpetic blotches, or even simple serous oozings from an abraded cuticle: a speck behind the ear, which might be covered with a split pea, is capable of disordering the vaccine vesicle."

This is really ultraism. Could it be established, that vaccination is controlled by such trivial occurrences, it would constitute a more serious objection to it than any which has been alleged by its most inveterate foes. The fact is, that Jenner, latterly, pressed on all sides by the augmented proofs of the fallibility of vaccination, lost his candour, and from a sort of parental partiality for his discovery, sought to vindicate it, or explain away its imperfections, in a manner unworthy of his former reputation for philosophical truth.

He, however, rendered it probable, by a series of observations, that the vaccine action will enter into combination with certain species of herpes, producing a third disease of a hybridous nature, which may be indefinitely propagated by inoculation, without change of character, though ineffectual to all the purposes of preservation against variola. It was early observed, and which lends confirmation to this statement, that vaccination, practised in situations simultaneously exposed to the variolous infection,

the case received a very material modification. Thus, at the first introduction of vaccination, Woodville, who had charge of the small-pox hospital in London, instituted some experiments in that establishment, with a view of testing the validity of Jenner's reports, and found, that in about three-fifths of the cases, a disease was produced, more or less of an eruptive nature, very different from the pure vaccine, and approaching more to variola. This led to a controversy between him and Jenner, which was soon settled by the discovery, that the anomaly could be directly traced to the operation of the variolous effluvia, with which the atmosphere of the wards of the hospital was impregnated, where the patients were placed—though not till great mischief had been done by the dissemination of lymph derived from this polluted source.

Of the influence of the other eruptive fevers, we are not so accurately informed. It seems, however, that when measles or scarlatina breaks out, the vaccine vesicle is arrested till these fevers abate, when it again resumes, and finishes its progress, with a retention of all its peculiar properties. Examples in verification of this statement have been numerously published. Gregory has lately given an instance where vaccination was retarded for sixteen days, during which time, measles had possession of the system. Genuine varicella, on the contrary, he says, does not at all interfere with it—the two affections running their courses harmoniously, which, however, is disputable.

Matter originally pure may, by keeping, undergo some change, weakening or destroying its qualities. Time, which alone will cause such effects, is much aided by a high degree of temperature. During winter, the pellucid virus, which is more perishable than the scab, may be preserved for many months: whereas, in summer, it loses its strength in a few days, and in some instances, even in a few hours. Being only impaired, it causes a pustule so imitative of the genuine one, as hardly to be discriminated. The particular in which they chiefly differ, is, that in the former, the scab is said prematurely to fall off, leaving the constitution so slightly affected, that no adequate protection is afforded.

Baron Humboldt gives an account of a surgeon of Lima having vaccinated a number of persons with superannuated matter, brought to that city, all of whom apparently did well, though the whole, subsequently, received variola by inoculation, in a very

mild shape. To the same point cases might be cited, from various records, showing that virus, enfeebled by age or otherwise, will excite a simulated affection, which, while it is incapable of an entire resistance, tempers the violence of small-pox.

4th. An effect not altogether dissimilar is said to follow the use of virus from an immature vesicle. Thus we are informed by Willan, that if lymph be had from a vesicle too early, it often proves totally inefficient, and where it does operate, the genuine disease is not produced. Gregory, however, maintains, that the earlier it is taken, the more active it is. That from a fifth day vesicle, he says, scarcely ever fails. But other objections aside to this notion, it is very seldom, indeed, that a particle of fluid can be extracted at so early a period, according to my experience.

5th. Matter may become degenerate in a vesicle originally genuine. This often happens from the subversion of the specific action of the vesicle by lacerating it to get the virus, or from its being accidentally rubbed, or otherwise molested in its progression.

6th. The genuine pustule may be local, extending no security whatever to the system at large, and thus constituting another source of failure. Not the least striking fact of this nature came within my own observation, so early as the year 1804. By the late Dr. Stewart, then physician to the dispensary of this city, a man was vaccinated, who seemingly having the genuine disease, matter was taken from his vesicle, with which several of his children were successfully infected. The father, after awhile, broke out with the natural small-pox, and had it severely—the children, however, escaped, and resisted repeated variolations as well as vaccinations. In the fifth volume of the Medical and Physical Journal, a case precisely similar is related by Dr. Harrison, and I have no doubt others are to be met with.

Lastly. There is reason to suspect that certain states of the atmosphere, or other occult physical causes, have an influence over the process. Gregory has correctly remarked, that it occasionally happens, that many spurious cases of the disease appear at the same time, and more at the approach of winter, than either in the spring or summer months. The same fact I have observed myself, though, I think, oftener in very hot weather, and have been in the habit of referring it to the well-known operation of heat in the deterioration of the virus. Certainly it is less efficient

under such circumstances, as evinced by the greater difficulty of imparting the disease by inoculation. During a series of extremely hot and dry weather at Turin, in 1829, we are told, indeed, that it was found so impracticable to impart the disease, that the practice was abandoned for a time.

To establish a test of the efficiency of vaccination, has engaged much attention, and various modes have been suggested, among which revaccination, some three or four days after the first operation, was very confidently proposed. It is said that, if the first vaccination be perfect, or, in other words, the constitution is adequately affected by it, the vesicle of the second will be so accelerated that the areola around each takes place simultaneously, both moving on *pari passu*, and fade together.* But, I presume, this proposition involves some fallacy, as it seems not to have been generally adopted, and, for many years, we hear nothing of the practice. Cases of its failure have, indeed, been published. Never had the proposition the confidence of Jenner, and, when originally suggested to him, was scarcely treated with courtesy. Writing to Bryce, in reply to his communication of it, he says: "I much admire your precaution in using a test of the certainty of infection, and your ingenuity in the manner in which you employ it. To *all young vaccinators*, it cannot be too strongly enjoined. The *experienced* will determine from the character of the pustule."

To revaccinate, at some period after the case is over, is more common. The system being protected, it loses its susceptibility to the vaccine impression, and, instead of a genuine vesicle, a slight erysipelatous inflammation or small phlegmon ensues, which usually soon subsides. But, in the latter particular, it may be otherwise, and I have seen very sore arnis, painful axillary swellings and fever thus induced. Nor can the expedient be entirely trusted. Either from defect of the virus, or peculiar condition of the system at the time, the second operation may be defeated, or run the course I have described. It affords, at best, only negative proof. Yet, on the whole, it is to be preferred. The objection to variolation, as a test, most strongly urged, is, that we must keep up small-pox, to supply matter for the purpose, and that it is liable to the same fallacies as revaccination.

* Bryce on Vaccination.

The scar, so greatly relied on, though it may show that a genuine pustule has existed, affords no evidence of the general disease, or that the system at large is duly protected. That which is most to be regarded, "is distinct, circular, radiated and cellulated, and, above all, is so small that it may be covered with a pea." This is the language of Gregory, who, from his ample experience as physician to one of the large vaccine institutions of London, is well entitled to be heard on the subject.

Now the practice of the vaccinists of Great Britain more particularly, is to proceed on the supposition that security is best attained by the multiplication of cotemporaneous vesicles.

"As a general rule," says Mr. Moore,* "it may be advisable to make two punctures in each arm, and, when this is properly done, three vesicles, at least, will commonly arise, and if four are excited, it is never to be regretted. If only two vesicles arise, neither should be opened or disturbed—and, if the vaccine proceeds regularly to the end, the vaccination may be considered complete. When three or more vesicles have been excited, lymph may be taken from the subject. But it is prudent always to leave two complete vesicles to pass through their course untouched."†

Though emanating from such high authority, I confess that I do not approve of this practice. Granting that the multiplication of punctures increases the chances of infection, it cannot tend to ensure the production of the genuine disease. The suggestion seems to me to have originated in pathological views altogether false, and is without the sanction of any adequate experience of its utility. The system loses its susceptibility to small-pox, not by the quantity of vaccine virus introduced, but by the impression it creates, and to do which, provided it acts, one particle is as effectual as ten thousand. To believe that the living body is capable of saturation by an excess of matter, as happens in a chemical process, which seems to me to be the foundation of this creed, is a conclusion drawn from a very remote analogy, and, in itself, is futile and absurd. By Thompson, whose inquiries have been so accurately conducted on every point connected with vaccination, it is, also, stated that the failures have been as

* History of the Practice of Vaccination.

† These are the directions also of the London Vaccine Establishment.

numerous where three as one pustule was raised.* Extraordinary is it, indeed, that such an expedient should have been adopted, after the decided experiments of Camper, formerly referred to, in relation to small-pox, which so conclusively showed that a single inoculation proved as effective, to all intents and purposes, as seven, the number which he tried. As a criterion of constitutional affection in this case, I am apprehensive that we are destitute of any deserving of entire confidence, and that such an attainment is still ardently to be desiderated.

It has been strongly affirmed that there is no evidence to warrant the popular notion that vaccination is the parent of certain foul eruptions. The attention of Willan to this point, and his ample opportunity of deciding it are well known. By him we are expressly informed that he is not sensible that any new affections of this kind have been generated since the prevalence of vaccination, or that the old disorders had become more numerous or virulent. But directly the reverse, the distempers of the skin having diminished. It is, also, a remarkable fact, which he cites to the same purport, that, in Gloucestershire, where the vaccine affection has existed longer than elsewhere, no such complaints are heard of.

Notwithstanding some objections, it follows, I think, on the whole, from what has been said, that most of the allegations against vaccination are not well sustained, proceeding rather from the carelessness of the practitioner than the demerits or imperfections of the expedient. We have, in proof of this, the strong fact that, prior to the occurrence of the varioloid epidemic, no instance of failure occurred in the practice of Jenner, and not above eight or ten in that of the National Vaccine Establishment of London, where vaccination was done to an enormous extent. Confirmatory of the same conclusion, we learn, from an official report to the British government, in 1812, apparently drawn up with care, that, out of two millions six hundred and seventy-one thousand and sixty-two cases of vaccination, only seven of small-pox had occurred.

Of the alleged failures, some, and perhaps many, were not really so. No one can doubt that varicella may be, sometimes,

* Thompson on Varioloid Diseases, p. 314.

confounded with small-pox, and the carelessness and unskilfulness with which vaccination was performed, need not again be told.

Be it admitted that the latter was always an imposition, or undeserving the praise it once received from innumerable of its cultivators, all experimental inquiry is futile: our senses are illusive, medical testimony a fallacy not to be trusted, and we must surrender ourselves up to doubt or absolute scepticism, vacant and unprofitable. We are, henceforward, to contemplate the subject in a far less favourable view—and here a stage in the inquiry is reached, when it becomes proper to introduce some account of the varioloid epidemic.

VARIOLOID DISEASE.

The difficulties with which vaccination had to contend in the commencement, and how slow and reluctant were the concessions, in many instances, to its validity and usefulness, are sufficiently known. To receive, at once, a discovery so novel in itself, of such high pretensions, and opposed, as it was, by the whole tenour of analogy and experience, could not reasonably be expected. It was, accordingly, subjected to the severest ordeal its enemies could suggest, and, in this scrutiny, objections were removed, prejudice after prejudice worn away, till conviction took the place of doubt and hesitation, and its triumph was signal and complete.

For many years this state of unqualified confidence continued unabated in every enlightened section of the world. Now and then, it is true, an instance of failure would occur, from causes not at all to impeach its general power of protection, by which some clamour against it was raised and some temporary popular distrust created. The profession, however, with some immaterial exceptions, seemed insensible to such impressions, and remained, with wonderful consistency, steadfast in its faith. Confiding, indeed, too implicitly, our discernment to real imperfections became impaired, and even a disposition approaching to intolerance arose, which made it reproachful to seem incredulous, much less to express doubts as to the infallibility of the process. But now, under a sort of panic terror, we are hastening into an

opposite extreme, prepared to confess our errors, and renounce that practice which had been cherished and defended with the vehemence and intensity of blind devotedness. Can such a course be reconciled to what is due to our dignity, to the cause we have heretofore so warmly espoused, or to that community which look up to us to guide them in this momentous concern, by our science and deliberative wisdom? Every obligation, properly operative in the case, directs us to pause,—to retrace calmly our steps, and dispassionately to survey the whole subject,—to contemplate it in its various lights,—to contrast its merits with its demerits, and studiously, by every help, to endeavour to arrive at a just decision.

That vaccination has often proved inefficient is not now denied even by its warmest advocates. To this point evidence has, by degrees, accumulated, of such force and certainty as not to be resisted.

The sources of many of these failures I have, in a preceding lecture, fully developed, and shown that, for the most part, they are under our control, and, as proceeding from ignorance or negligence, may, by proper care, be hereafter avoided.

In relation to the subject, such was pretty generally the sentiment, when a disease broke out in Europe, which has led to some new views, and ultimately, as must be confessed, to a much lower estimate of vaccination than formerly.

This disease seems to have prevailed, for the first time to any extent, at Edinburgh, in the winter of eighteen hundred and eighteen. It had previously shown itself in several provincial towns of Scotland, and, though exciting some curiosity, commanded no serious attention. Contemporaneously, or nearly so, it raged in England, particularly at Norwich, as well as on the continent, in France, at Geneva, in Italy, in Holland and Germany.

Emanating from these points, it progressively spread throughout Europe, scarcely any one portion of which escaping. Crossing the Atlantic, it appeared the next year among us, diffusing itself over the United States, thence invaded Mexico, South America and the Antilles—subsequently the East Indies, and seems, in a greater or less degree, to have pervaded nearly the whole world, affording an instance of one of the most extensive epidemics on record.

The foreign writers describe it as assailing three classes of persons—those who had passed through small-pox naturally or artificially,—those who had been vaccinated, and those who had been subjected to neither of these processes.

By Professor Thompson, of Edinburgh, an elaborate treatise has been published, embracing a formal and systematic history of the disease. Declining, for obvious reasons, to follow him in detail, I shall attempt to present, in a mere summary, some of the leading and most important of his matter.

In persons, having had neither small-pox nor cow-pox, the eruption is represented as preceded by fever, commonly of great violence, though sometimes comparatively moderate, continuing for three days, and eventuating in a variolous eruption of various gradations of severity. Of two hundred and five persons, whom he saw in this form of the epidemic, fifty died, making a proportion of one in four, which, independently of other evidence, shows its uncontrollable nature. In those who had previously had small-pox, the eruptive fever, in very many, was severe, and in others so mild as scarcely to be perceptible. The eruption, for the most part, resembled the chicken-pock in its several varieties, though in some instances, it had the appearance either of the discrete or confluent small-pox. Of this form of the disease, he saw or heard of seventy-one cases, three of which died, giving the proportion of one in twenty-three. It is worthy of remark, that in two of the fatal cases, the attack recurred in a few weeks after small-pox.

The disease, in persons previously vaccinated, seems not to have differed materially from that under the immediate preceding circumstances. Describing it, he indeed employs nearly the same language, though, on the whole, it may, I think, be collected, that such cases were milder. Even when the fever was ever so violent, it almost uniformly ceased on the appearance of the eruption. Now and then, however, it assumed the shape of some of the worst species of small-pox, and ran a protracted course. It would be very interesting to determine, whether the system, in these inveterate cases, had been protected by vaccination faithfully done. We are aware to how many contingencies is that process exposed. Be this as it may, it is consolatory to learn that of three hundred and ten individuals affected after vaccination, only one perished, and whose

death can hardly be ascribed to this cause. Of the above number, forty had the disease a second time—only a single instance is mentioned of its returning a third time, and repetitions of attack were distinguished by no peculiarities. It is observable that a large proportion of those who were seized with the disease after vaccination, had been, in the intervals, inoculated with small-pox, or exposed to its agency without being affected. From the accounts in my possession, there was such an essential uniformity, as it prevailed generally abroad, that what I have stated may suffice to convey an adequate notion of the epidemic.

As it appeared in various sections of the United States, my knowledge is not very precise. The accounts, however, which were furnished me at the time, by two of my correspondents at Lancaster, in this state, where it first occurred, show it in one aspect very differently from its exhibition in Europe. It broke out in November, 1818, and was alleged to be traced to some German emigrants, who disseminated it in passing through that city into the interior of the country. The disease, it is true, attacked indiscriminately the variolated, the vaccinated and unprotected, though not in the same proportions. Of the first description, or those who had previously had small-pox, there were six cases, of whom none died—of the second or vaccinated, forty, two of whom, very young children, died in convulsions—and of the third or unprotected, three hundred and fifty, among whom there were four deaths. This slender mortality, with some other facts, led me to suspect that the disease was varicella. It may be remarked particularly, in confirmation of this suspicion, that chicken-pock seems everywhere to have preceded or accompanied the more formidable epidemic.

From Baltimore, where it prevailed in the winter of 1821, and still more violently in 1822, my intelligence is still more defective. It is stated, however, to be the common impression that it was imported from Liverpool—though this is doubted—and we learn that it occasionally attacked both the vaccinated and variolated, I presume in a mitigated shape, since no death occurred under such circumstances. The unprotected suffered much, many being affected, attended with a mortality of about one in six or seven cases. From New York I received an account very similar, in regard to the origin and character of the disease. This is the substance of various communications which reached

me, separated from a mass of vague and contradictory statements.

In this city, so early as June, 1823, an eruptive fever, which was considered as ordinary varicella, made its appearance and spread very extensively. Contemporaneously prevailed also scarlatina, rubeola and erysipelas, with a variety of anomalous cutaneous affections. Measles, especially, was very rife, and generally of a highly exasperated character, so that former attacks of the disease, in several instances, afforded no protection. During the existence of these exanthemata, some time in July, four cases of very strongly variolous character occurred nearly at the same time in widely separated parts of the city, no intercourse whatever having taken place between the persons, the origin of which could not be traced to any known contagion. Cases of this description gradually multiplied, and by the commencement of November, they had become numerous, though almost exclusively confined to Southwark, one of our suburbs, among the poorest class of our population.

It was about this period that some alarm was excited by the occasional occurrence of it in persons who had been previously vaccinated, and such failures daily increasing, no doubt was longer entertained that the same epidemic, which elsewhere produced so much solicitude, had visited us. The disease henceforward ran its course, and, in most of its features, conformed to what has been observed in regard to it in other places. It attacked the variolated, the vaccinated and unprotected, occasioning those modifications, under the several circumstances stated, which are so accurately described by the foreign writers. As far, indeed, as came under own my immediate observation, there was no material difference. Every degree was presented from that of the mildest varicella to the most malignant small-pox. Generally it was of the former character. Commencing with a slight fever, which endured from one to three days, the eruption appeared sometimes merely as an efflorescence,—though usually as minute papulae, many of which speedily dried away, while others ran on to the formation of vesicles or pustules. The latter were of diverse shapes, conoidal, lenticular, oval, circular, flattened on the surface, with a central depression, and an imperfect areola around some of them, bearing, on the whole, a resemblance more or less to the vaccine or variolous pustule.

Great difference existed as to the extent of the eruption, and the manner in which it came forth, in some instances confined, and that very sparsely to the head,—in others, the whole body was covered pretty thickly, breaking out simultaneously, or in successive crops, occasionally of one uniform character, or exceedingly diversified, being papular, vesicular or pustular, &c. Commonly, all febrile excitement subsided on the manifestation of the eruption, and copious as this might be, it was not followed by any secondary fever. The eruption rapidly faded away. Even when consisting of pustules, these began to desiccate, in two or three days, into thin darkish scabs, which soon after fell off, leaving a smooth, florid surface, with, perhaps, here and there a pit or indentation, or a small fungoid excrescence.

But this account regards only the benignant form of the affection, in its several gradations. As intimated, it sometimes exhibited a much more formidable aspect, having every feature, in its progressive stages of discrete or confluent small-pox, and under circumstances, too, of an antecedent subjection of the system to variolation or vaccination by the most skilful practitioners. Taking place without the mitigating influence of these processes, it was nearly always apparently variola, and generally in its most malignant typhoid shapes, proving as incurable as probably ever was known.

But in some further particulars the epidemic differed, and among which the protective powers of vaccination proved with us infinitely less than elsewhere. From data tolerably authenticated, it is computed that between four and five thousand failures of this process took place, and I have not been able to collect more than thirty instances of alleged secondary small-pox, and very few where the previous attack was in the natural way, or so violent by inoculation as to have left any marks behind.

Curious is the fact, that neither Dr. Physick nor myself, on this or any other occasion, ever met with an unequivocal instance of secondary small-pox. Many of the cases reported to be such I visited, and detected a source of deception which ought to be guarded against in the investigation of the subject. The disease chiefly prevails among the most stupid and ignorant classes of society, by whom the term inoculation is only employed, and

hence they are apt to report themselves, as having been variolated, when really the act was that of vaccination.

The following table, taken from the report of Drs. Mitchell and Bell, who had charge of the small-pox hospital, is interesting in several views. It furnishes a statement of the results of one hundred and forty-eight cases of the disease.

“There were forty-seven cases in persons who had been previously affected by vaccination, none of which died. Eight cases occurred in persons previously affected with small-pox, of whom four died and four recovered. Ninety-three cases were in persons who had not had either disease before, of which fifty-two died and forty-one recovered.

“Of the whole number, sixty-nine were whites and seventy-nine persons of colour. Two out of the eight persons who had suffered from small-pox a second time, took it the first time naturally or without inoculation. Eight of those vaccinated were so during the prevalence of the epidemic, and some of the mildest cases were in the persons of those who had been vaccinated upwards of twenty years before.”

This table includes the results only to the 14th of January. The relative proportions, however, subsequently, in every respect, were pretty nearly the same.

The record of our *board of health* up to the same time, shows that little more than three hundred died of small-pox, and four only of the varioloid disease, whether the last followed variolation or vaccination, does not appear.

No instance, at this period, or for several years afterwards, came within my knowledge of any repetition of attack in the same person as noticed in Europe. But, subsequently, I have seen it in three families, to the amount of seven cases.

The disease, in conformity with most others dependent on a specific contagion, gradually declined on the accession of warm weather, and by the first of June entirely subsided. Next winter, however, it reverted, though sparsely, and thence ceased, with, perhaps, here and there a separate case, till the succeeding winter, when it again returned very much in the same manner as before. From 1825 to 1827, so little was seen of it that hopes were entertained of its disappearance, when it once more revisited our city to a considerable extent. During the next two years, it became nearly extinct, and so continued till the winter

of 1830, on which occasion, numerous cases occurred. Not much was heard of it after that period, though occasionally solitary instances were met with. But in 1833, it again revived, and spread widely, since which, with the exception of the year 1840, we have had scarcely any of it, and probably the epidemic has become exhausted. Each of its renewals has been marked by nearly the same phenomena, varied chiefly by gradations of violence, and in every instance preceded by varicella, scarlatina, rubeola, as well as by an infinity of other cutaneous affections. It is not to be supposed that we were exclusively the victims of this disease. Nearly all our cities, and many portions of the country, have been exposed to its ravages, during the same period, though probably not in the same degree.

Connected with this inquiry, the facts are now sufficiently laid open to enable me to enter on those speculations which immediately grow out of the subject. The question primarily arising relates to the precise nature of the epidemic, whether it really be small-pox, or some other affection not obedient to exactly the same laws.

Two hypotheses have been advanced, and each maintained with much ingenuity and force of argument. The predominant opinion in Europe, as well as in this country, supposes it to be genuine variola, which, operating on a system that has undergone the variolous or vaccine impression, produces comparatively a mild affection, to which the title modified small-pox, or varioloid disease, is applied.

In support of this view, it is alleged, that the most lenient and worst forms of the epidemic, in some instances, reciprocally produce each other, either by inoculation or in the natural way, and this is held forth as the *experimentum crucis*, from which there is no escape. But it seems to me to be rather a *petitio principii*, in which the variolous character of the case is assumed, and not demonstrated. The fact of their mutual communicability, admitting it to be true, which I am not disposed to do, as regards the disease particularly among us, surely does not prove the identity with small-pox, since another disease, in its different forms, may have the same property of reciprocity of production. Never have I known the varioloid miasm to induce variola, nor is there any positive evidence, within my own experience, of its being infectious, causing a disease even like itself. That a con-

trary opinion exists, I am aware, though I think it has been hastily formed, and is not entitled to much respect. Nor, so far as I have seen, was small-pox or any near approach to it, the result of inoculation with the virus. Most of the attempts to propagate it in this mode have utterly failed. Experiments, however, made here in 1823, show that the varioloid virus, introduced into a system neither variolated nor vaccinated previously, occasions a vaccine-like vesicle, around which are soon thrown a number of pimples, which run into each other and into the vesicle, after which the latter degenerates into an irregular phlegmon, followed by fever and a slight eruption:—whereas, on a protected system, only a local vesicle is induced, resembling the vaccine, which perishes prematurely on the sixth day. These experiments, originally made by Dr. Darrah, of this city, have since been confirmed on repetition by M. Genderin of Paris, who, however, says that the same protective effect is derived from varioloidation as by variolation or vaccination, which latter has not been substantiated.

Whatever may have been the disease elsewhere, it is hardly possible to conceive that, as it originally existed at Edinburgh, and especially in this city, it could have been pure small-pox. There are several discrepancies hardly reconcileable with such a supposition. Not to dwell on minor points of difference, it seized indiscriminately, though not in an equal degree, on the vaccinated, the variolated and unprotected, by either of these processes, and, in some instances, there were two or three reiterations of attack in the same person, within a very short time,—circumstances unprecedented in the history of variola.

Exigetically, it is suggested that, at all times, such occurrences were more common in regard to small-pox than suspected, and especially during an epidemic prevalence of it. For this allegation there is, perhaps, some foundation. The conviction was very general, among the early writers on the disease, that it might be repeated in the same person. This doctrine was, indeed, asserted, with few exceptions, till arraigned by Mead in a very confident tone, by whose weight of authority it came to be subverted, or, at all events, very much shaken. Cases militating against his views were henceforward, till lately, denied, for the most part, to be of a variolous nature, and explained away as some other distinct eruption. But the ancient notion has again

been revived, and it is now maintained that the eruptions called chicken-pock, swine-pock, horn-pock, stone-pock, water-pock, chrsytalline-pock, are really the variolous disease, thus variously modified by the system having before been partially affected by small-pox or vaccination. Conformably to this hypothesis, which Professor Thompson has espoused, all these affections, including the varioloid, have one common parent in small-pox, and though somewhat dissimilar in aspect and other qualities, retain enough of general resemblance to betray their consanguinity or relationship. As the sea-nymphs, of whom Ovid says:

"Facies non omnibus una,
Nec divina tamen, qualem deceat esse sororem."

Their faces, though not the same, are so much alike, that they might be known to be sisters. Granting, however, all that is contended for in this respect, which I have shown that I am not prepared to do, it seems to me, every other objection aside, that the repetitions of small-pox so far exceed all former experience, as to be utterly irreconcileable with the explanation now attempted. Consult the whole history of the disease, and no parallel instance can be found,—prevailing, as it has done, epidemically, at various times, in a shape quite as formidable. Nor have we found, on the subsidence of the epidemic, here or elsewhere, which ought to have happened, according to this notion, any correspondent change in the character of the disease.

By others it has been held that the epidemic in question was really a malignant or highly aggravated state of varicella. It is admitted, as before mentioned, though generally there is no difficulty in distinguishing the two diseases, that occasionally varicella, in some epidemic prevalences of it, assumes an aspect so imitative of variola, as readily to be confounded with it. Till within the last half century, indeed, they were, on this account, considered as the same disease, the latter being somewhat modified.

As regards our recent epidemic, it is indisputably true, that on its original appearance, the preclusive cases of it were decidedly of a varicellous nature. These were in summer, and it is not utterly unreasonable to surmise, that when, on the accession of cold weather, by the concentration of the contagion, the disease may have been gradually exacerbated into the malignancy which

it ultimately assumed. Moreover, neither variolation nor vaccination affords any security against the attacks of varicella, in which particular it corresponds, to a certain extent, with the epidemic in this city. Nevertheless, the hypothesis is met by such insuperable objections, that I think it must be abandoned, and especially by the fact that varicella cannot be propagated by inoculation, in this respect differing from the epidemic in its unmodified state.

Taking all the circumstances into view, I am half inclined to, though not absolutely willing to adopt the opinion, which alleges that this recent epidemic, if not some other disease, was a very altered state of small-pox. The conjecture is, at least, rendered plausible by the consideration of the impossibility of reconciling the multiplied failures which have taken place, as well in vaccination as variolation, with all preceding experience of the infallibility, or nearly so, of these two processes. What becomes, on any other supposition, of the evidence deduced from the infinity of experiments in the early stage of vaccination for the purpose of determining its efficacy. Numerous individuals, we are told, were exposed, after having gone through this operation, to the most concentrated contagion of small-pox in hospitals and elsewhere, with entire impunity. These experiments were made to a very great extent in London, Paris, Vienna and this city. It was the practice, too, for a series of years, to subject all cases of vaccination to variolation, as a criterion of the efficiency of the former—and the result of these multiplied trials was as I have stated. From Jenner we learn that, “in the year 1801, of the six thousand persons vaccinated, the greater number were thus tested, and subsequently exposed to the infection of small-pox in every rational way that could be devised, without effect.” No point was seemingly better established than that an individual having had vaccination was rendered for ever unsusceptible to the action of small-pox. But now, the fact is otherwise, or that this expedient affords a very precarious protection. It has been urged, I am aware, in explanation of these failures, that small-pox, when vaccination was introduced and its efficacy tested, so far from being of the envenomed character it subsequently assumed, had become so remarkably mild and benignant that its contagion possessed little force. The suggestion would be entitled to more attention, did not the same degree of fallibility

in the process continue to the present moment, when the epidemic has lost its intensity.

Conceding, however, its plausibility in regard to vaccination, I do not see how it can apply to variolation. To the period of which I am speaking, small-pox once thoroughly acquired in this mode or naturally, little or no solicitude was entertained of any future recurrence of it. Not to cite authorities superfluously on this point, let us take a single one, from countries where the subject was probably best understood. The estimate of Heberden, in England, of secondary small-pox, was one in five thousand, of Condamine, in France, of one in double this number, by Van Swieten, of Germany, it was denied altogether, and the late Professor Kuhn, of this university, informed me that, in a practice of fifty years, he had never met with a single instance of such an occurrence. But now, the lengthened and accumulated evidence which sustained its efficacy is gone, and we are released from a creed which, slowly and cautiously adopted, was cherished with idle credulity for more than a century. Difficult as it may be to suppose that we were labouring all this time under so gross a deception, it unavoidably follows, should the disease prove to be genuine small-pox. But presuming the contrary, or that some new, or exasperated, or otherwise altered old eruption, with the general variolous aspect, though in some particulars of a different character, has appeared, we are supplied with an infinitely more satisfactory solution of this problem.

Nor do I perceive why we should, without investigation, refuse our assent to this hypothesis. Change is as incident to some diseases as any thing else, and while many are gradually modified or wholly extinguished, others are suddenly brought into existence. We shall presently see that there is some reason to suppose that the vaccine affection itself has already experienced such an alteration. Not, however, to insist on this, I shall cite the venereal distemper as an exceedingly pertinent example. Developed by a fortuitous combination of causes, it has, in the progress of time, undergone a most striking revolution in its character and treatment. From the early writers on the subject it may be learnt, that, when that disease first appeared, it had the character of a general febrile eruption, propagated by an infectious effluvium, and not particularly by sexual intercourse, or

confined, in its primary aggression, to the genital organs as in later times.

Nothing more extraordinary is there in the varioloid than the syphiloid affections. That inoculation should no longer afford absolute security against this modified contagion is not more surprising than the inefficiency of mercury in most of the modern forms of syphilis.

Dismissing this part of the inquiry, it may be remarked as very curious, that a similar conjecture was some years ago thrown out by Southeby the poet. In a dialogue purporting to be between Sir Thomas More, who lived in the reign of Henry the Eighth, and a personage of the present day, the latter is rebuked for too arrogantly asserting the superiority of modern discoveries and improvements, and especially in relation to small-pox. "What," says More, "if small-pox, which was vainly supposed to be subdued, should assume a new and more formidable character, and as there seem grounds for apprehending, instead of our being protected by vaccination from its danger, it should be ascertained that inoculation itself affords no security?"* This, in some measure, may have proved the language of prophecy.

From my own observations, I should say, that of any given number of individuals, as usually vaccinated, who might be exposed to the concentrated infection of small-pox, not one-third would escape the disease, in some shape or degree—and in this estimate, I am entirely supported by several of my medical friends. To persons of adult and more advanced age, I have more immediate reference. Children not being admitted into the hospitals I have attended, where contagion is most active, my experience in regard to the operation of it on them is infinitely less. Especially have I remarked the affectability of the members of the medical class, whose average age is about that of the legal majority, to such attacks.

It must be deduced, on the whole, I am apprehensive, whatever may be our reluctance to do it, that vaccination, as a prevention of the epidemic among us, has proved so inefficient as scarcely to deserve to be considered at all in this light.

Throughout Europe the same distrust of the security furnished by vaccination at present exists, as appears from many of the recent publications. The testimony of Gregory is very emphatic,

* Vid. Southeby's Dialogues.

and from his position as physician to a large vaccine establishment in London, particularly authoritative. Honestly does he confess, that the failures of vaccination in the prevention of small-pox, have been steadily on the increase for some years past, and that small-pox, after vaccination, is far more frequent than instances of secondary small-pox. From the register kept in the hospital, we learn that in the year 1813, the proportion of cases of small-pox succeeding vaccination, to the whole number of admissions, was as one in thirty—in 1815, was one in seventeen—in 1819, as one in six—in 1821, as one in four, and during the year 1822, as one in three and a half.”

In 1837-8, small-pox again recurred epidemically in London: the admissions into the hospital were double the usual number previously to the practice of vaccination, and two-fifths of which were after a subjection to that process.* Further, it appears, at a late meeting of the Royal Medical and Chirurgical Society, of London, Gregory stated “that, in the middle of November, 1837, there had been a sudden and marked increase in the number of patients admitted into the hospital, and which had continued up to the present time. From the first of January, 1838, six hundred and eighty-one cases had been admitted, and of these two hundred and eighty-one had previously been vaccinated. Startled at this increase, he had made inquiries at various sources, and found that the disease was spreading in the same fearful manner throughout England, scarcely a town or village having been free from it since last November, and the increase throughout Europe had also been great: but on the continent the alarm had been taken, and revaccination practised to a great extent. In 1833-34 small-pox was very prevalent at Copenhagen, and in twenty months one thousand patients were admitted into the hospitals, of which nine hundred had been vaccinated. These are important facts, bearing on the prevalence of small-pox, and the present failure of the vaccine lymph as a prophylactic measure, and, should these statements be borne out, will show the necessity for the immediate adoption of sanitary measures to prevent the spread of so dreadful a disease.”

The subsequent proportion, in the London institutions or elsewhere, I am without the means of determining. But it seems to

* Library of Practical Medicine.

be the creed into which the medical mind everywhere is fast settling down, that vaccination is chiefly valuable as preserving life, by tempering the violence of small-pox. Even thus limited, its utility is great, as will appear more conspicuously, when the fact is proclaimed, that upwards of one-half died at first, in this city, of the epidemic in the unprotected system, and not more than one in the thousand where vaccination had been properly received.

On the reports of our Board of Health, which warrant such a conclusion, I think, however, we are not too implicitly to rely. It was then, it continues to be, and has ever been, much the practice of the profession to endeavour to maintain the reputation of vaccination by false modes of reasoning and other subterfuges. Death happening, or a case assuming the character of decided variola, after vaccination, it was pretty uniformly referred to the operation having been unskilfully performed, and never admitted as proof of the fallibility of the expedient. Many such instances I suspect were never reported, or if returned, they were as malignant varicella, of which several came within my own knowledge, it being then not an uncommon opinion that the epidemic was really of this nature. Nevertheless, it must be admitted that vaccination proved wonderfully conservative of life.

From the same amiable weakness, truth has been disguised in another way. Eager to sustain vaccination, the opposite disposition has, at all times, prevailed to disparage variolation. Every thing militating against it was sought after, and reported with no proper care of investigation, nor apologies offered, as in the other instance, for its alleged failures. But, surely, the two processes, in this respect, should be placed on the same footing: what is allowed to the one, in all fairness to be extended to the other, in order to reach a just comparison of their merits. Neglect, or ignorance, or incompetency, I have shown, renders vaccination nugatory, and not less so does variolation suffer from the same causes.

Notwithstanding these and other remarks, I wish it to be understood, that I am not, at least in the present uncertainty of the subject, for abandoning vaccination, and still less for reverting to the process of variolation. Excepting in the degree of prophylactic power, which seems to be much in favour of inocu-

lation, the superiority, in every other view, is indisputably with vaccination. Exclusively of diverse considerations, by which it is recommended, too obvious to be noticed here, it is a process mild in its general character, rarely inducing unpleasant consequences, and never proves fatal. But of inoculated small-pox we are told by Willan, one in two hundred and fifty dies, and several distinguished English writers have made it as one in a hundred. But these statements, I presume, have reference to the results among the out-door poor of England, with whom no advantages can be commanded. Certainly much greater success has been attained in the small-pox hospitals of that and other countries, and in private practice among persons in comfortable circumstances, where proper skill and attention were exercised, the fatality of the operation had become exceedingly inconsiderable, as before mentioned. Distinct from its mortality, it may be objected to variolation, that it occasionally entails the most lamentable effects, developing scrofula, phthisis, and other loathsome diseases, causes the loss of sight, and is destructive by its disfiguration of personal comeliness.

By variolation, supposing the disease in this form to be infectious, the sources of contagion are, moreover, multiplied, each case proving a new point from which the disease may emanate, so that, though individuals were benefited by the mitigating influence of the process, the aggregate of mischief was actually increased. Computations made by Heberden, without any reference to this question, show that, subsequently to the introduction of inoculation, *ninety-five* persons died of small-pox, in London, out of every thousand, whereas the average number, antecedently to it, was only seventy in the thousand. Corroborative of this, it is shown that, in Spain, where the practice of inoculation was scarcely ever admitted, small-pox has caused less mortality, in proportion to the population, than any country in Europe. Candour, however, compels me to acknowledge that an opposite view is entertained. Many have denied the general fact, and Adams, then at the head of the London Small-pox Hospital, has plausibly shown, by a different mode of calculation, a diminution of deaths from the disease since the more extensive adoption of inoculation. This, with other evidence which might be cited, goes far to weaken, if not to invalidate, the conclusion drawn from the preceding statements, and in some degree to sustain the

hypothesis formerly noticed of the non-infectious nature of the inoculated disease. Even in this state of amelioration, however, the extent and kind of mischief of which small-pox was productive were enormous.

Nearly fifty thousand individuals annually did it destroy in Great Britain only, occasioning every fourth death in the kingdom. Lettsom computed the mortality in Europe at two hundred and ten thousand, and Bernouille, an Italian authority, throughout the world at six hundred thousand annually. By vaccination, though limited by vulgar prejudices, this frightful expenditure of human life was greatly abridged. What was the extent of its whole effects in this respect I have no means of determining. But we have some striking facts in relation to particular countries, where vaccination was enforced by law. From official reports, it appears that in Copenhagen the mortality had been reduced from five thousand five hundred in twelve years, to about one hundred and fifty-eight in sixteen years, and finally small-pox became extinct in Denmark. The same happened in the principality of Anspach. In Prussia the number of deaths was diminished from forty thousand to three thousand annually, and in Bavaria only five persons died of the disease in eleven years.

An extension of the plan by which small-pox was eradicated in some of these countries, has been thought would as certainly do it as regards the whole world, and, by a wise and cordial co-operation in this mighty work of benevolence, this terrible scourge of humanity might, in a few years, be so completely annihilated as to leave behind only its name and the story of its former ravages. Even Jenner himself, in the glow of his enthusiasm, ventured such a prediction. These hopes were not well-founded. Distinct from the difficulty of enacting, and, still more, enforcing penal provisions against inoculation or other modes of introducing or continuing the disease, under free governments, there is an insuperable obstacle to its extinguishment in the circumstance not adverted to, that it occasionally arises, as it were, *de novo*, in an epidemic shape, which no regulations can prevent or even repress. This very city, admitting the late epidemic to have been small-pox, affords an illustration of the force of this objection to the scheme. For a long period it escaped the disease by a common agreement of the physicians not to variolate, aided in

the design by strict quarantine and some other regulations to exclude it, when the epidemic burst out among us and rendered at once nugatory all our well-meant efforts. The same has happened in those countries of Europe which, by similar means, enjoyed for a time a like immunity. Nevertheless, what cannot be altogether prevented may be mitigated—and so far it is our duty to exercise our influence, and especially by discouraging the practice of inoculation.

Every other objection aside to variolation, I should be exceedingly distrustful, in the present state of our knowledge of the subject, of the genuineness of the virus now to be procured. No one denies that of the precise nature of the epidemic some doubts may reasonably be entertained, and who can foresee whether it shall prove a security against real small-pox?

As to vaccination, we have an assurance of its virtue, so far at least, as regards the preservation of life, and it seems to me that common prudence requires that it should not be exchanged till all uncertainty is removed.

Not without plausibility, it has, within a few years, been strenuously urged in explanation of the fact of the augmentation of the failures of vaccination, that it is a process temporary only in its effects,—the system, however protected for a period by it, ultimately reacquiring its susceptibility to small-pox. An apprehension of the kind was early avowed by Jenner himself, though soon disclaimed, and in 1809, Brown, a surgeon of Musselburgh, Scotland, preferred this charge against it on evidence afforded by his own observations, which ought to have been heeded. But vaccination was then completely at the point of its culmination—and the medical profession being unwilling to have its glory tarnished, or, still more, perhaps its utility lessened, by the creation of any popular distrust of it, treated the discovery as an idle endeavour of its author to acquire notoriety, and himself with contempt and ridicule! Different, very different indeed, is the case at present. Emanating from the highest authorities, such a mass of similar and stronger facts has accumulated, as to have reversed very generally the preceding views.

Gregory has stated that, for about five years after a successful vaccination, the system appears to be wholly insensible to a repetition of the process. But at the expiration of ten years, the skin becomes irritated on an insertion of the virus, followed, in a few days, by a pointed or accumulated vesicle, with an areola of

irregular figure,—the whole prematurely perishing. Much constitutional disturbance, attended by swellings of the axillary glands, on some occasions takes place. Cases, however, occur under these circumstances, where the revaccination runs a regular course, both as to the local and general affection, and matter is furnished by the vesicle, capable of propagating the genuine disease. To these facts others may be added of equal or greater force.

Frequent occurrences of small-pox after vaccination, in the armies of the German states, induced, some time ago, several of the governments to direct a general revaccination of the troops. As regards those of Wurtemburg with whom the process began, it is said by Professor Heim, "that, in sixteen hundred and eighty-three individuals in whom the operation was repeated in thirty-four in each hundred, it completely succeeded—in twenty-two with modified results, and in forty-four it utterly failed. Of five hundred and seventy-seven who were revaccinated with entire success, two hundred and ninety-three had perfect cicatrices,—in one hundred and sixteen, imperfect,—and in one hundred and sixty-eight, there were no scars at all. Three hundred and thirty-six, revaccinated with unsatisfactory results, had good marks,—one hundred and thirty-four defective traces only,—and thirty, no vestiges of the kind. Finally, seven hundred and forty of the revaccinated, without any effect, three hundred and twenty-two showed good—two hundred and twenty-two imperfect, and one hundred and thirty-six no cicatrices."

The results are equally striking as to Prussia. Lochmeyer reports that, of the military vaccinations in that country, up to 1833, out of forty thousand cases, thirty-seven thousand presented "plain traces of previous vaccination,—fifteen thousand had the disease afresh,—twelve thousand imperfectly, and twenty-one thousand not at all. Of these last, seven hundred contracted cow-pox, being vaccinated afresh, and three thousand not. Fifty-four out of those successfully revaccinated, took varicella,—fifty, other varioloids, and twenty-three, small-pox."

To proceed further with these details in relation to other countries were superfluous, as there is an essential correspondence in the whole of the official returns which I have seen.

The inquiry has been very slenderly aided in the United States, so far as I can learn. For the last twenty years, however, as is

well known, I have annually revaccinated a considerable portion of the class of our medical school, with a view of testing the efficiency of the former operation. Many, at all times, and some even with proper cicatrices retook the disease perfectly,—though in this respect a marked difference was observable in different years, owing to variations in the degree of susceptibility to infection. What this depended on I cannot say. Nothing was there, apparently, in the character of the seasons or other circumstances to which it could be ascribed. The average of successful revaccinations was about a third, and this has been gradually increasing. Certain considerations, however, detract from the value of any deductions from these cases. No small portion, perhaps a majority of our class, come from parts of the country where vaccination is practised irregularly, and under great disadvantages. The matter procured from the venders of it in our large cities, the common sources of supply, is not always good,—and the operation is seldom superintended with sufficient care and vigilance, from the distance of the residence of the patient, or the meanness of the compensation. But it appears that, in 1840, small-pox having again assumed an alarming shape in this city, Dr. Kirkbride, physician to the House of Refuge, and the Institution for the Instruction of the Blind, resorted to revaccination of the inmates of these establishments as means of security. Two hundred and nine children, with proper cicatrices, all others being excluded from the experiment, were subjected to the operation, of whom about twenty-one per cent. had the disease perfectly. Considering the period of life, this is a very large proportion, and is one of the facts calculated to create distrust of the operation of all dates and at every age.

The ensuing document which I derive from a Parisian journal, is too interesting to be withheld.

“The Minister of Public Instruction requested the Academy of Medicine to enlighten him on the following points:—1st. Whether the preservative virtue of the vaccine matter be not impaired proportionably to the time elapsed from the process of inoculation? 2d. Whether the decrease of efficacy does not render revaccination necessary? 3d. Whether it would not be desirable to cause the pupils of all the colleges to be revaccinated according to dates, &c.

“The academy solved the three questions in the negative, and

begat a controversy which rages in the common newspapers not less than in the medical repositories. Physicians of note immediately addressed protests to the minister, styling the decision of the academy rash and baneful, and arguing all the points in the affirmative, by facts and authority, which the doctors of the academy are accused of having utterly overlooked or disdained."

M. Dezeimeris has just published a copious memoir, and M. Gaultier de Claubry, a large pamphlet, in favour of revaccination. These writers and a crowd of others on the same side cite numberless cases and opinions drawn from Great Britain, the north of Europe and America,—and they finally concur in this general inference, that experience and reason render it an obligation of law to prescribe revaccination, and to propagate it with the same zeal as original inoculation. Their special views are:—1st. "That vaccination loses its preventive power after some years, so that it no longer prevents small-pox from reappearing —taking the regular course and proving fatal. 2d. That revaccination has the same original power and final decline as vaccination—and that it succeeds the more certainly in proportion as the time is remote at which the patient has had the vaccine disease."

Copious as my extracts have been, I cannot forbear to indulge in one more. It is stated by Dr. Stewart, of Kelso, Scotland, in his correspondence with Dr. Gregory, just published, "that his opportunities of seeing small-pox have been large, and particularly when it prevailed epidemically in 1834-5, it having then attacked many vaccinated and unvaccinated." From the experience thus obtained, he ventures to draw the following conclusions:—"That vaccination affords but an imperfect protection against small-pox at all periods of life:—that the protection becomes more imperfect as the individual advances in life:—that, at the age of puberty, the influence of vaccination, provided it has been had recourse to in infancy, nearly ceases,—or at any rate, in a majority of cases, at the age of twenty, vaccination ceases to exercise any protective power whatever." To revaccination he was therefore led, pursuing it extensively for the last twelve years, and found, as he anticipated, "that it was successful exactly in proportion to the time which had elapsed from the first operation." He tried the experiment on four persons in whom he knew the previous operation had been carefully conducted,—

aged fourteen, sixteen, nineteen and twenty. In the first the modification was considerable,—in the second less,—in the third still less,—and in the fourth perfect cow-pock, and it went through all the stages quite regularly. There was a difference, too, in the progress of the pox. The first came to a height on the fourth day—the second on the fifth—the third on the seventh—and the fourth on the eighth day.”

Now, from these data it is probable, perhaps certain, that by time the system regains, in many instances, at least, its sensibility to the vaccine infection, and it may be presumed, in the same way, to that of small-pox. The lesson is hence inculcated, to test it in all cases by revaccination. No apology, indeed, can be made for the omission. To do it is our bounden duty, and any neglect on our parts may be deemed a flagrant misdemeanour for which we must be held responsible.

Deliberately do I believe that there never was a more serious call on professional exertion. By the laws of epidemics, strikingly illustrated in relation to the variolous, we may with certainty look for a speedy return of such an affliction. Experienced already in Europe, after the usual suspension, why should we calculate on an exemption? Come when it may, unprepared as we are at present to meet it, and it will be a most terrible calamity. Much have we to apprehend that vaccination may not prove either as a prophylactic or mitigator of the disease so effectual as on the former occasion. Diminution of its power, in each respect, seems steadily progressive, as was conspicuously displayed in the recent epidemic prevalences of small-pox in England, France, Germany, &c. Be it admitted, however, that it may preserve life as formerly, it is still to be remembered, that it frequently does it at the expense of great suffering to the individual, and of anxiety and terror to friends. Not rarely have I seen varioloid attacks which, in these particulars, might be compared to the graver forms of the variolous affection itself. Equally alarming is the preliminary stage,—the force of fever, with disorder of the brain, stomach, lungs, &c., the only difference between them being, that in the former, there is no secondary fever, and the whole goes off more abruptly, as an abortion, seemingly, owing to defective vigour to carry on the case farther regularly through the successive steps to its final termination.

Let us hence proceed, as they are now doing abroad, to the performance of revaccination without delay, to bring it to the criterion of a well-conducted trial, and then reject or retain the expedient according to its ascertained merits. The operation is simple, and no detriment can possibly ensue from it. For the repetition of the process, the precise period, however, seems not to be determined. Gregory, as we have seen, intimates that, at the expiration of five years, after the first operation, some change takes place favourable to the renewed action of the vaccine virus, and probably not less to that of the variolous,—though, on the whole, he thinks it need not be attempted prior to the tenth year, and the most urgent season for it is between puberty and confirmed manhood.

Following out the notion of Leo Woolf, previously advanced in a memoir on the subject, published in this country, Heim, of Germany, whose experience is so ample,—maintains that, owing to the change which the constitution undergoes at maturity, the general organism is so deeply affected that the antecedent condition from the impression of vaccination is done away, and susceptibility to small-pox restored. This may be a just view, and still it were prudent not to restrict the practice to any period of life. Carelessly as vaccination has been pursued, who can tell the number of cases of imperfect execution? Every age I would hence include, and in going over the whole ground, mark whatever is defective, and endeavour its rectification. Thousands of persons, vaccinated this very year, I cannot doubt, were the operation now to be repeated, would betray the incompleteness of the preceding one!

That a disposition to small-pox is more apt to be reacquired at some distant interval is proved by the circumstance of the greater liability of grown persons than children to its recurrent attacks after vaccination. Few very young persons, it appears from the report of the London Small-pox Hospital, have been received into that establishment, and those few almost invariably with the mild modifications of the disease:—on the contrary, nearly the whole of such presenting the severer forms of it had been vaccinated from fifteen to twenty or more years. Can any thing further be required to show the gradual diminution of the protective power of vaccination, and of the imperative necessity,

with a view of keeping it in force, to renew the operation from time to time as may hereafter be determined?

It has also, of late, been affirmed that the virus now in use, having become effete or less active, a resort for a supply to the original source should be had. No satisfactory determination of this question has hitherto been made, and very opposite opinions still prevail in reference to it. Formerly, however, the proof of the virus retaining its powers unimpaired was very decisive. By Professor Thompson it is stated "that the virus used at the Royal Dispensary, at Edinburgh, for eighteen years, was still as efficient as first collected—though it had passed, during this period, through a succession of at least nine thousand individuals." Marshall, whose work was published much more recently, declares in relation to the virus employed in London, "that the same taken from a cow in 1799 has ever since been kept up, and probably transmitted through some hundreds of thousands of systems without any evident deterioration." This is likely the source of most of the matter now in the world. During the same year, four thousand cases were propagated from it, which furnished a supply to the whole British empire, including the army and navy, and also to other countries whither it was liberally despatched.

We are assured by Griva, chief of the vaccine establishment at Turin, that in 1829, when epidemic small-pox existed in that city, "no difference was to be traced between the aspect and progress of the old and the new,—the primitive and the long humanized virus."

From Germany, where this experimental course was conducted on a very extensive scale, between the years 1831 and 1836, similar reports were received. The several vaccine establishments of London, and, perhaps, of Britain, seemed to continue their confidence in the matter they had originally employed, and such was the case throughout this country. "For one year," says Watson, in his admirable work on the Practice of Physic, "I had a seat as senior censor of the College of Physicians, at the National Vaccine Board, and I then had opportunities of satisfying myself, that lymph, which had been transmitted without interruption from person to person ever since the time of Jenner, continued to generate as perfect a cow-pock vesicle as at first."

Confirmatory testimony might readily be collected to any amount from every quarter, up to 1836. But henceforward, it dwindleth in cogency and extent,—and some of an opposite character appears, by which medical opinion on the point has become materially affected. Fresh matter was procured from the cows of the dairies of Passy, a village near Paris, at this period, which, after adequate trials, was generally pronounced of superior quality. Next year the National Vaccine Institution of London was induced to substitute new for the old matter, and with the same acknowledgment. No great while afterwards, Mr. Estling, surgeon at Bristol, England, discovered the disease among the cows of that neighbourhood, and the virus was freely distributed, some of which reached this city, and produced the same conviction of its excellence in those by whom its effects were witnessed.

It seems, on the whole, to be agreed among those who have had opportunities of judging, that the primitive matter, wherever obtained, proved more active and operated with greater certainty. The local inflammation, as well as the constitutional disorder, was more violent, and a manifest improvement exhibited in the vesicle and subsequent pustule, areola, &c. How far this representation is correct I cannot say from my own observations, every attempt which I made with the Bristol matter having been unsuccessful.

The experiments to which I have alluded are very defective. They show only greater energy in the new virus, leaving the fact of the capability of the impression created by it to protect against small-pox immediately or remotely in absolute doubt. Nor does the mere circumstance of higher intensity of action, local or general, or even of more perfect development of the pustule prove very conclusive. The spurious disease, in many instances, as previously intimated, is remarkably distinguished by the two former particulars, and the occasional fallacy of an unexceptionable local affection, in every respect, as to its commencement, progress, maturity and declination, is universally admitted. Examples, without number, of the failure of vaccination, and when performed, too, by the most experienced, have occurred with every favourable indication. Much remains to be accomplished in this investigation to the ascertainment of truth.

There are some, I am not ignorant, who deny the possibility

of the degeneracy of the virus, as contrary to facts and to all analogy. Neither part of the averment is correct. The facts already adduced, and which have rapidly increased, and will probably go on to increase, are surely too imposing to be disregarded by the medical philosopher or mere practitioner—and, indisputably, the history of our science furnishes sufficient instances of diseases, even of some specific diseases, having gradually abated in force or virulence till they became exceedingly changed or totally extinct. Grave obstacles, however, oppose the inquiry. The cow, which at all times precariously supplies the matter, I have reason to believe, does not at all, at the present moment,—and may not again for years. As the disease has hitherto prevailed, too, and its future recurrences, it is to be anticipated, will be marked by the same feature, the genuine has invariably been associated with spurious forms of the affection, demanding greater skill of discrimination than will, I fear, be bestowed on the subject. I have said that the existence of a spurious pustule in the cow was early known, of which Keim declares that, in his subsequent inquiries, he detected five different varieties, each capable of propagating an illegitimate and unprotective affection, all, however, closely simulating the genuine one. The perplexities which Jenner and the other primitive cultivators of vaccination experienced in this respect, and the mischief occasioned by the mistakes committed, are not to be forgotten.

It is impossible to contemplate the present posture of vaccination without perceiving the doubts and difficulties with which it is encompassed. By the revolutions which it has undergone, nearly all once believed to have been determined, it is subverted, or thrown into a very unsettled and questionable shape.

The subject must again engage our most assiduous attention, to clear up every vexed point, by a candid and dispassionate examination of facts, directed solely to the ascertainment of truth. Especially should we endeavour to determine more accurately than hitherto has been done the nature of the varioloid epidemic in its several relations. Next, how far the original vaccine virus has lost its efficacy by successive transmissions, or retaining its active properties,—whether its effects are limited only to a certain period. Having our knowledge thus rectified, vaccination must be committed exclusively to the profession with such a

compensation as shall secure proper skill and fidelity, in the practice of it, which heretofore, I am persuaded, it has never commanded.

From the proposed inquiry, should it appear that the recent failures are owing to any or the whole of the causes mentioned, the corrective may, perhaps, be supplied, and the pristine confidence in the process fully restored.

Disappointed, however, in this respect, a recurrence ought again to be had to *variolation*, and it also fairly tried. To a correct appreciation of it, we must determine, among other points, the exact security it affords in the present state of small-pox,—how long this endures, the degree of mortality from the process, and whether it be infectious, so as to multiply and spread the disease. The medical men of Europe are turning their attention to this expedient,—though slowly and reluctantly. McCormac, one of the most distinguished of them, after deplored the causes of the depreciation of the process, adds, “that the inference appears clear, that unless the benefits attendant on vaccination be further improved and perfected, it would seem preferable to resort to inoculation afresh.”* Even Gregory himself, the last, it might have been supposed, to have used such language, exclaims, in the correspondence formerly referred to: “Well, then, what is to be done to fortify the public mind in the matter of vaccine security? How long are we to go on thus showing annually the increase of our practical distrust of vaccination? The sooner we come to a decision on the subject the better. There is one and only one way in which this can be done. Not by revaccination, but by inoculation at distant periods from the date of vaccination.”

The necessity of the alternative, I do not, however, very gravely apprehend. Duly attended to on our parts, and with liberal public support, I am inclined to believe, and fondly trust, that all difficulties may be overcome, all cavils silenced, and all prejudices removed on the subject. By adverting to the loose and indiscriminate manner in which vaccination has been practised by the heads of families, by the clergy, by old women, and other benevolent, though very incompetent personages, we ought rather to be surprised that the number of failures have been so small,

* *Methodus Medendi, a new work on the Practice of Physic, of great merit.*

in a process which, from its delicacy, requires to be superintended by all the powers of discrimination and skill. Every good is interwoven with some portion of evil. The singular mildness of vaccination, by taking it out of professional hands, has undoubtedly very much detracted from its utility and exposed it to some very unjust imputations. No one was more culpable for the injury which in this way accrued, than Jenner himself. Too eager to spread the value of his discovery and to *popularize* it, as it were, he for a time became a sort of medical demagogue, addressing himself to a class of people who ought never to be appealed to in any matter of professional concern,—representing vaccination as an affair of such simplicity as to be comprehended and practised by any one of common intelligence. To secure a general co-operation in the scheme of vaccine propagandism seems to have been his design. The invitation to unite with him in it was too flattering not to be promptly and numerously accepted, and especially by the description of individuals I have mentioned. But soon was he awakened to a sense of the error he had committed, and never ceased endeavouring its counteraction by a frank confession of the evil of which it was productive. Now, however, a reformation may probably be instituted in this respect. Considering how much our pride is interested in a discovery which so gloriously illustrates the character of the profession, it is among our first and highest obligations to vindicate it against the caprices of fashion and fluctuations of opinion, till it is firmly established, to be transmitted to posterity unimpaired, as the noblest contribution ever made by science to the purposes of human benefit and happiness. Nor are our obligations less to the memory of Jenner. The column once erected to it is daily suffering from dilapidation, and must speedily fall into ruins, if its defects be not repaired, and greater security given to its foundation. Be this our grateful office. The mode of executing the task has already been indicated. Even should we be disappointed in establishing the merits of his discovery to the extent originally conceded, we cannot fail, by a just exposition of his services, to throw around his name imperishable renown, and enrol it enduringly with those

“Inventas aut qui vitam excolure per artis unique sui memores alios fecere
merendo.

RUBEOLA, MORBILLI, OR MEASLES.

Formerly, rubeola was written rubiola or rubiolo, it being derived from the Spanish *rubio*, and came to be changed to *rubeola*, as directly proceeding from the Latin *rubeo*, to be red, or to blush. Morbilli or morbillo is a term also of Spanish origin, being a diminutive of *il morbo*, the plague, though it was employed, it is said, to designate the disease as a lesser degree of small-pox, the greater malady then having the same title with which it had been confounded. Meaning mottled or speckled, the term measles, which is an old English word, was obviously applied to the affection from its presenting such an appearance.

Notwithstanding the allegation of some writers of the antiquity of measles, it seems now to be generally admitted that the disease was brought into Europe at the same time, and probably from the same place as small-pox, and ran so nearly the same course, that it was supposed, as already intimated, to be merely a modification of the latter, and as such is described by the Arabian writers, who were the first to notice it. As late, indeed, as the period of Diembrenbroeck and Moreton, both of whom have given accounts of it, the notion of the identity of the two diseases was still entertained. To Sydenham, the contemporary of these writers, we are indebted for the earliest accurate and discriminating history of measles, and to which, excepting the later contributions of Watson, who wrote in 1763, and the still more recent inquiries of Willan, by each of whom a supposed variety or modification of the disease is pointed out, nothing scarcely has been supplied.

Measles exhibit several varieties or modifications, and may be either of an inflammatory or passively congestive or malignant character, in each of which states I shall notice it.

The more common form of it, entitled *rubeola vulgaris*, will first claim our attention. For the most part it is decidedly an inflammatory affection, ushered in by alternate chilliness and heats, languor, pains in the loins and limbs, soon succeeded, in many instances, by anorexia, thirst, sickness of stomach or vomitings, with whitish tongue, fulness or aching of the head, cough, or rather defluxions from the nostrils and eyes, which latter

are somewhat swollen and red,—in the whole resembling the incipiency of catarrhal fever complicated by gastric irritation. These symptoms, in different cases, vary in the order of precedence and in degree and combination. Either the gastric or pulmonary may be anticipatory, or the two simultaneously burst forth, or the one preponderate, or an equality exist between them—and, in other respects, there are diversities.

Nearly from the commencement, the fever which quickly follows is usually considerable, though, at times, for the second or third day, light, becoming higher, with a stronger and fuller pulse and more pulmonary oppression, and is particularly marked by an increase of heaviness and somnolency before the eruption, which mostly appears about the fourth day. Cases, however, are recorded, and some I have met with, of its taking place with little premonition—others, in twelve or twenty-four hours, and many, of its being postponed to the sixth or seventh day. Twice I have seen it appear on the tenth day, the fever having distinctly intermitted, and Buckholtz has reported a case where it was delayed till the twenty-first day.

The eruption is primarily displayed on the face, particularly the cheeks and around the eyelids, nose and ears, where it is always most prominent—next on the neck and breast—thence on the arms and hands, successively on the different parts of the body, and finally the lower extremities. It comes out in small reddish spots, distinct, circular or rather elliptical, a little elevated above the skin, and more florid in the centre than the edges. These gradually enlarge, and, by a confluence or running into each other, form patches of a crescent or semilunar shape, with considerable spaces between them, where the skin preserves its natural colour. In the middle of some of these maculae a slight vesicle is occasionally observable, and I have known the eruption, in several instances, to approach in aspect an imperfect varicella. Generally, on the trunk and extremities, it differs from that on the face in being merely an efflorescence in patches without any elevation. It also may partially come out as welts, resembling the infliction of the rod or whip, which anomaly, though not usually noticed, I have repeatedly met with, and uniformly in concurrence with regular measles elsewhere on the body.

By some writers it is declared that the exantheme may extend

to all the passages of the interior to which the atmosphere has access. They describe it on the gums and throughout the mouth and fauces, and on the surface of the pharynx, œsophagus, larynx and trachea—and, by one of them, as even on the occluded contents of the thoracic and abdominal cavities. But the latter clause of the statement I entirely distrust. That it may exist in the throat I am satisfied from my own observations, and can discern no reason why it might not be in the windpipe. May not, indeed, the croupy affection, incident to the second or more advanced stage of the disease, be caused by it?

The eruption retains its redness, which, I have, said is seldom or never of a bright hue, for two or three days, and then assumes a fainter colour, when it gradually vanishes altogether and is followed by a mealy or branny desquamation. But a peculiarity has been indicated with regard to the termination of the eruption, to which I must advert. It sometimes happens that, about the seventh or eighth day, the rash becomes livid, with a mixture of yellow, continuing for ten days or longer. This is the rubeola nigra of Willan, by whom, I believe, it was first remarked, though not as an alarming circumstance.

The eruption, in every variety of the disease, is rarely followed by an immediate abatement of the febrile symptoms. An exacerbation, indeed, oftener takes place, manifested by an increase of the pulse, heat of surface, more embarrassed respiration, cough and soreness of the chest and abdomen—by greater turgescency of countenance, headache or stupor, and, in children especially, by a croupy hoarseness or watery diarrhœa. The nausea, vomiting and other gastric or præcordial distress usually cease as soon as the eruptive stage is over. Mostly the fever continues, in some degree, until the desquamation is completed, and may even to a later period. Yet the cough, which forms such a prominent symptom, is ordinarily still more protracted—lingering, at times, with great obstinacy. In some cases, so violent is the thoracic affection as to amount to bronchitis or pleurisy or peri-pneumony, and croup has been noticed frequently in children. These may take place in any stage, and especially by an imprudent exposure to cold about the period of convalescence.

Measles, though ordinarily more purely inflammatory than any of its affiliated affections, assumes, on some occasions, a character directly the reverse,—the fever being really typhoid, and

may be little short of typhus gravior, which form of the disease has been called *putrid* or *adynamic measles*. It was first described by Watson, and commonly prevails as an epidemic. The most remarkable instances of its occurrence of which I have read, were at Plymouth in 1745, in London in 1763, and at Edinburgh in 1816. Extreme debility is represented early to supervene, with restlessness,—a constant propensity to vomit, and much disturbance of the cerebral functions,—sometimes fierce delirium, though more commonly coma,—a dry, hard, or loaded and black tongue, swelled and mahogany-coloured fauces, with an imperfect eruption of a livid complexion, so much disposed to recession, that it takes place several times in the twenty-four hours.

Not improbable, however, as has been conjectured, the disease to which this description applies, and particularly that of Watson, who still held the identity of the two affections, was really scarlatina, having, in regard to the lesion of the throat especially, a greater resemblance than to measles. Nevertheless, that the latter may assume the congestive state, is neither unreasonable to suppose, nor wanting in positive proof of its actually occurring. But it was chiefly distinguished, as I have seen it, by a colder and paler collapsed skin, more gastric and cerebral disorder, by a greater sense of oppression, a less perfect development of the eruption, and which was of a fainter hue than ordinary, with an almost irresistible tendency to recede. Cases of it I have indeed sometimes met with in which there was little or no catarrhal or other pulmonary affection, the alimentary canal and brain seeming exclusively to suffer,—and here, vomiting or purging, or both, as in cholera, with stupor and low delirium, and a purplish or livid eruption, interspersed by petechiae and vibicis, and sometimes passive hæmorrhage were the prominent characteristics.

There is a further modification of the disease, or so it is considered by some, termed *rubeola sine catarrho*, to which attention was first called by Willan. It occasionally prevails in this country, and is recognized by the familiar title of French measles. Characterized by many of the symptoms of genuine measles, it differs from it in the absence of catarrhal affections, as its name imports, the earlier appearance of the eruption, which is diffused in specks over the surface, and not arranged in a succession of definite crescents, by a more transient continuance, usually sub-

siding in twenty-four hours, and altogether in comparative mildness. It may exist separately or in conjunction with common measles, and I have seen an attack of it succeeded by one of the latter in the course of eight or ten days. Not affording any protection in this respect, I presume it to be an efflorescence of another nature, dependent on some very different cause, or if at all of a morbillous character, it is illegitimate, and, in this view, is aptly called *rubeola spuria*. Nor am I more disposed to admit as a distinct species of the disease, the *febris morbillosa sine exanthemate* of some of the late German writers. Thus occurring, which has long been known, it is, I suspect, always when the case terminates abruptly in an early stage, and, therefore, an inchoative or imperfect disease—or where the system not being adequately protected by a previous attack, a fever with catarrhal defluxions only, is induced by a subsequent exposure to the rubeolous contagion, neither of which conditions has claimis to be viewed in the light alleged!!

What were the circumstances under which measles was generated, we know as little as of the origin of its kindred affections, and scarcely more of the cause of its periodical visitations. It sometimes occurs sporadically or sparsely, more commonly as an epidemic, according to Sydenham, “breaking out at the beginning of winter, increasing till the vernal equinox, and dying away towards the summer solstice.” No season of the year, however, escapes, having seen it thus to appear in summer, and it is often the precursor or concomitant of variola or scarlatina or some other of the exanthematous fevers.

That it returns regularly once in seven years has been maintained, and in support of the opinion, facts are adduced. As a result of a thorough research into the subject, Professor Caldwell, now of the Louisville College, affirms “that, beginning in 1772, and passing down to a period including fifty years, it prevailed epidemically in this city and vicinity, about every sixth year. How far this statement is correct, or on what data it is founded, I have no means of determining. Certain it is, however, as to the later portion of this series of time, the fact has been otherwise. During the last thirty-five years, I do not think that we have had an exemption, for any long interval, from the disease. It may have been suspended for a year or more, though almost annually it might be met with, either sporadically or generally.

Excepting influenza, measles spreads, perhaps, more rapidly and diffusively in some instances than any other epidemic. Not to cite other evidence of it, in 1801, in a few months, it overran nearly the whole of the United States, and in 1823 was scarcely less pervading. Nor is it improbable that, in such instances, its influence is extended to the brute creation. During its prevalence just alluded to, it is said many of the domestic animals suffered severely from fever with catarrhal fluxions. But though thus observant of the epidemic character, there is still sufficient reason to suppose that the immediate cause of the disease is a specific contagion, proving more or less operative, according to the constitution of the season, in this particular conforming to other analogous affections. Let me repeat here, that because a disease is an epidemic, it is not necessarily uncontagious, in proof of which, among other instances, small-pox, the most conspicuously dependent on contagion, very frequently assumes this character, spreading rapidly and widely.

Existing epidemically, measles may be taken without any communication with the sick, or breathing the air of a room contaminated by such having recently occupied it. The atmosphere seems, to a great extent, to be infected during the wide prevalence of the disease, and the inhalation of it anywhere, within the vitiated limits, may adequately operate to this end. Facts are wanting to show decisively whether it can be disseminated by fomites, though I can scarcely doubt it. Nor is it better ascertained at what stage of the disease the contagious property is evolved, or when it attains its greatest activity. Most probably, in each particular, it is subsequent to the eruption.

Notwithstanding the evidence to the contrary, I cannot think it one of those affections capable of propagation by inoculation. Experiments, I am aware, are appealed to, instituted by Home, then professor at Edinburgh, who asserted that inoculation succeeded with great certainty, and produced a milder disease. This he effected by an application of cotton dipped in the blood of a patient with measles to a scratch or slight incision in the skin. The fever, we are told, followed in six days, was comparatively light and without any disorder of the pulmonary organs. These experiments, however, seem never to have been confirmed, and their accuracy is questioned by most writers, and pointedly by Cazenave, in his late work on cutaneous diseases.

Confirmatory evidence, however, is not wanting. Willan cites the testimony of a Mr. Wachsel, an English surgeon, who asserts that he succeeded in several instances, where the operation was performed with the fluid of the vesicles. More recently, too, we have the declaration of Sperenza, of Italy, to the same effect, and, above all, the sweeping averment of Von Katona, of Hungary, of his success by inoculating with a drop of the fluid from the vesicle, and the same amount of the tears mixed. Eleven hundred and twenty-two cases were thus treated, in which there was a failure of seven per cent. only, all the rest having the disease mildly, the eruption appearing about the tenth day.

To this point such is the only proof, so far as I know, and my researches have not been limited. That it is not satisfactory may be made, I think, very readily to appear. Evidence of an opposing character is not less abundant and forcible. Willan reports that he inoculated three children with the vesicular fluid without any effect. Thurman and Tilligen utterly failed in their numerous trials in the same mode, and we learn that experiments instituted in our dispensary, in 1801, in which the blood, the tears, the mucus of the nostrils and bronchi, the eruptive matter on the cuticle, properly moistened, were all unavailingly tried. Not unlikely, in the instances of alleged success by inoculation, the individuals had been previously exposed to the infection of the disease, and to this mode may its production be properly ascribed, the coincidence being mistaken for the effect, one of the most common sources of vitiation of our medical inductions. Could inoculation be practised with the certainty and the benefit attained in the mitigation of the disease which are asserted, why, I demand, has not the expedient been universally adopted, as was formerly the case in small-pox? Does not this fact alone sufficiently invalidate the averments on the subject?

The common opinion is, that the latent period of the morbillous contagion, or, in other words, that the disease breaks out after an exposure to its cause, in about eight days, though, on this point, there is not unanimity,—Willan, for instance, making it from ten to fourteen days. Careful and extensive observation has satisfied me that the last is the incubative period, in this, too, among some other particulars, resembling small-pox.

Can measles be had a second time? That it is contrary to the

tenour of the disease is well established. Yet anomalous cases do occur, among the most authentic of which, an account is given by the celebrated Baillie, of eight persons in the same family. As prelusive to the varioloid epidemic, in 1823, measles prevailed of a very malignant kind, very extensively in this city, and on that occasion, several repetitions of it were observed. Failures of protection, however, may, perhaps, to a certain extent, be ascribed to the former attacks being of that variety of the disease entitled *rubeola sine catarrho*, which does not impair the susceptibility to genuine measles. Nevertheless, Willan and others have remarked, that, under circumstances of epidemic prevalence, it is not uncommon for those who previously have had the genuine disease to be seized by a rubeolous fever, without any, or at all events, a very slight eruption. It, on the whole, may be in this respect assimilated to small-pox.

Curious is it that measles takes so firm a possession of the system, that its peculiar action is not readily supplanted by diseases apparently more violent, in proof of which the case of small-pox may be adduced. Generally it has happened, that where the two affections co-existed, measles in a short time acquired the ascendancy, and, after running its course, small-pox was re-developed. Examples, however, are recorded by Russel, De Haen, Vogel, Pinel, Willan, Bateman, &c., of the two diseases passing through their regular stages, without impairing the force, or in any way affecting or modifying each other. But the most striking instances, perhaps, are those related by Dr. King, who tells us, that he inoculated with variolous matter, forty-three children in the Foundling Hospital of Dublin, of whom sixteen sickened with measles, four or five days afterwards, and the small-pox appeared in due season, without apparently being at all influenced by the circumstance. These and many other facts of a similar kind completely refute the dogma which once prevailed in the schools, of the incompatibility of two morbid actions coexisting in the same system. Hunter was probably the author of it, and Rush the warmest of its defenders. As well, he exclaims, could a horse trot and gallop at the same moment as any part of the body entertain simultaneously two distinct actions. True as the proposition may be in the main, exceptions to it cannot be doubted.

Measles is readily recognized in most instances. The sup-

posed modification of it, without catarrh, approaches nearest to it, and the distinctive signs between them were formerly indicated. As to scarlatina and some other affections, occasionally bearing an analogy to measles, I shall postpone my remarks on their respective peculiarities, till I arrive at the consideration of these diseases.

Not very serious in its ordinary prevalence, provided it is exempt from certain complications, measles, when epidemic, is usually at first more so, and has on some occasions in this shape proved so dreadfully fatal, as to have received the title of a *little plague*. Existing in this mode it presents chiefly the typhoid or malignant, or some very abnormal characters. Far more formidable does it prove in Europe than this country, owing to the poverty and wretchedness of the lower class of people. Especially do the bills of mortality of London show a fearful destructiveness of life from it.

The disease is milder in childhood than in adult or in earlier or more advanced life, it being often extremely unmanageable in infancy and old age. The danger in pregnant women, which is represented as great, has probably been overrated. Two cases attended by me under these circumstances did well, and Heberden, whose experience was very extensive, informs us that he never knew a woman to miscarry or seemed to suffer more from the disease on account of her situation in this respect.

Typhoid measles, under any circumstances, is always to be dreaded, and very frequently proves mortal in spite of our best efforts. Certain symptoms are uniformly of very bad import, as the eruption coming out slowly or imperfectly, or of a pale or livid hue, with petechiæ or vibices, or the sudden recession of it, attended by vomiting or purging, with extreme tenderness of the epigastric or still lower regions of the abdomen—impeded respiration, however occasioned, by lesions of the lungs or the trachea, or low delirium, with coma or spasms or convulsions. The latter occurring, especially in a child, during dentition, “magnum periculum portendum,” is the language of a great authority. As, indeed, the gastro-enteric, cerebral or pulmonary affections are violent, and especially when passively congestive, the case may be deemed alarming. Further may it be remarked, that where any predisposition exists to pulmonary or laryngeal affection,

the disease is to be dreaded in its immediate or remote consequences.

Nevertheless, the most sudden and unexpected conversions sometimes take place in the disease, by exposures to cold, or by other ill management, changing altogether its character, rendering a state of things which had been mild and favourable, very much the reverse, or, as I have seen, extremely perilous; so that, under all circumstances, such contingencies are to be guarded against by proper vigilance and care, or a safe issue to any case cannot be confidently prognosticated.

The attack having been decidedly inflammatory, evidence of such a state is conspicuously discernible on dissection, in the trachea and its terminations, or the substance of the lungs, or the pleural coverings, the one or the other or the whole being more or less affected according to circumstances. Essentially are the appearances the same as when inflammation of the parts is induced by cold or any of the ordinary causes. Connected with these lesions, or independent of them, similar ones are often found throughout the alimentary canal, with sometimes an implication of the liver, or the collatititious viscera generally, and even of the brain or its envelopes. Different, however, is it in the typhoid or malignant form of the disease. Equally pervading, the inflammation is of the weakest species, coupled with heavy passive engorgements of the organs of the great cavities, and not unfrequently attended by diverse extravasations. But though all these structures may become involved, the proper and immediate seat of the disease seems to be the mucous membranes, and after the eruption takes place, the rete vasculosa of the skin.

Touching the pathology of measles, it might almost be sufficient to refer to what was said of that of small-pox. Excepting one particular, there is no material difference. The fever in the former does not subside on the coming out of the eruption, as in the latter affection, which is owing to a retention of the irritation in the interior surface, relieved in small-pox by a translation of it to the skin.

From the prominent affection of those organs, measles has been usually presumed to have its original seat in the lungs and appendages. Considering, however, its similitude to variola in so many features, it seems to me much more probable that it is radicated in the primæ viæ, and that other structures are brought

secondarily into participation. Be it alleged that many of the symptoms are catarrhal or pneumonic, it may be replied that the alimentary canal and the parts with which it immediately sympathizes, as the brain, are even more disordered in the early stage. Do we not know that measles very frequently commences with nausea, vomiting and tenderness of the epigastrum, accompanied by great distress of the head, sometimes eventuating in delirium or coma, and still more so in diarrhoea? It is true that, on dissection, the pulmonary organs exhibit morbid phenomena, and so do the stomach and bowels to a considerable extent. Examples are numerous of diseases beginning at one point displaying themselves in their progress more prominently in other sections of the body. This is strikingly illustrated in measles, where, nearly always, the gastric symptoms abate or subside much sooner than those of the lungs, and hence the reason that, in post-mortem examinations, greater lesions are detected in the chest.

In the treatment of small-pox, so much was said which is not less appropriate to that of measles, I shall not permit the latter long to detain us. The lightest form of the disease requires scarcely any thing to be done. An avoidance of exposure to cold, some gentle laxative and low diet will be found usually sufficient. But, in attacks of greater severity, the course must be more energetic and decisive.

The leading object should be to evacuate the alimentary canal, and, when not contra-indicated by reasons presently to be noticed, an emetic may be directed, especially in the cases of children, in whom vomiting is an easier, and, at the same time, a more efficacious process. It proves exceedingly useful in relieving the irritations or oppressions of the pulmonary system, usually so deeply concerned in their attacks, and, by its action on the skin, prepares the way for the reception of the efflorescence. An emetic, however, though so serviceable, is not ordinarily an essential remedy, and, where there is an absence of the pulmonary affections mentioned, purging may be substituted, for which purpose castor oil or the saline laxatives are preferable. Yet neither mode of evacuation is admissible where, instead of pulmonary, gastro-enteric irritation exists to any extent. This is to be allayed by measures, which have been previously so fully pointed out that they need not be recapitulated. The condition being thus rendered fit for their exhibition, the mild diaphoretics and diluent

drinks next become proper to promote the eruption, and also in reference to other purposes.

Fever, however, rising to any height, with an active pulse and local phlogosis, whether in the lungs or primæ viæ or any other structure, either before or after the eruption, venesection must be freely practised, to which are to be added, as auxiliary to the design, leeches or cups and blisters, with whatever else enters into the management, ordinarily, of such a case of complicated inflammation. But, above all, venesection is efficient under such circumstances, and no period of life, whether of infancy or extreme age, should forbid it—taking care only to regulate it by the condition of the individual. Greatly was it commended by Sydenham, and subsequently by Mead, Cullen, Heberden and other able practitioners. Few, indeed, are there of any authority, who do not coincide in this estimate of the remedy.

Typhoid measles is treated differently. Cutaneous action is here first to be excited. This indication may be met by sponging the surface with tepid diluted spirits, or by the warm bath in greater emergencies,—aided by moderately stimulating diaphoretics and warm drinks. The lancet is withheld, or very cautiously employed. But topical bleeding may be advantageously substituted to remove the congestion of organs. Evacuations of the stomach and bowels are indispensable, commencing with an emetic and then a mercurial purge, which contributes to the same end.

As the appearances of exhaustion supervene, we are to resort to the sulphate of quinine, or to the diffusible stimuli, among which the carbonate of ammonia or camphor is best, alone or with an opiate, as the latter may seem to be demanded by nervous inquietude or insomnolency. Excitement is also to be sustained or renewed by sinapisms or blisters, and a large one over the epigastrium is sometimes productive of great effect, by bringing out the eruption or changing it to a more healthy character.

In the cure of measles, the regulation of the temperature of the chamber and of the drinks is of considerable consequence. The weather being hot, and the attack decidedly inflammatory, the most refreshing ventilation is required, with cold beverages—and, reversely, in winter, and particularly in the typhoid state of the disease, such a degree of heat should be preserved as to favour

cutaneous excitement, without causing restlessness or febrile disturbances, and the drinks moderately warm. The more induced am I to mention this, since some practitioners attempt to identify the treatment of measles with that of small-pox, in which a low temperature is found most beneficial. Carrying out the analogy, even cold affusions have been used, and, from the alleged success, strenuously recommended. This view seems to me false, and the practice it dictates must be pernicious, except where the lungs escape an affection, and the skin is exceedingly dry and hot. Even here, sponging only is warrantable. But the pulmonary apparatus is nearly always implicated in the case, and it is well known that cold is tolerated by no one of its morbid conditions, it never failing, indeed, to prove an aggravating agency.

Measles is singularly prone to sequelæ or consequent affections, among which are catarrh and pneumonia, ophthalmia, aphonia, diarrhoea and some other more chronic derangements. Even when a predisposition only exists, it is exceedingly apt to ripen the tendency into actual disease, and particularly scrofula and phthisis, to which some writers add hepatitis. Nothing, however, very peculiar characterizing the management of the generality of these secondary affections, I shall scarcely notice them further. It may be sufficient to say that the whole of them are to be treated by those remedies the best adapted to subacute or chronic inflammation, which is their true pathological condition. Yet diarrhoea, from the extreme debility often associated with it, is apt to lead to a deception, and which, on this account, may require to be specially designated.

Too commonly, under such a delusion, a resort is had to the astringent and testaceous preparations, which are both ineffectual and mischievous. The lax, in this case, is the result of inflammation of the mucous coat of the intestines, and can only be relieved by the measures I have intimated. It was Sydenham who first made known this fact, and subsequent experience has abundantly confirmed it. Bleeding, general or topical, in moderation, with ultimately a blister to the abdomen, and the Dover's powder exhibited at night, with an occasional recurrence to the warm bath, constitute the proper means. Continuing obstinately, however, calomel or the blue pill, in minute doses,

with opium or otherwise, becomes necessary, and more especially where the liver is concerned, which sometimes happens.

It remains to remark, that the black appearance occasionally taking place at the close of the eruption, giving to the disease the title of rubeola nigra, is said to be speedily removed by the internal use of the muriatic acid. But, for the most part, as spontaneously subsiding in a short time, it may be disregarded.

My wish, in closing the subject, is further to urge the importance of more circumspection in the treatment of measles than it usually receives. We have seen that, in its graver states, how many organs it involves and the serious injuries inflicted. As much, perhaps more to be dreaded, are such lesions than the disease itself. That the affections it entails or develops are the results of imperfect cures, and hence might be obviated by better practice, is my deliberate opinion. Being decidedly inflammatory in its common nature, it obviously exacts the antiphlogistic course in all its details, and especially the loss of blood, to the neglect of which I am disposed to ascribe mainly the mischief so lamentably experienced. Never have I known a case of inflammatory measles to resist adequate bleeding. But our care must not stop here. Caution should be enjoined, even after the disease is seemingly cured, and still more during convalescence, against any exposures to cold, or improper indulgences, or trespasses of any kind.

SCARLATINA VEL FEBRIS RUBRA.—SCARLET FEVER.

From the peculiar floridness of the skin incident to it, this disease is so denominated. The first of these terms is Italian, and has been much objected to by the sticklers for a purely classical nomenclature as a barbarous interpolation. For it, the second is one of many titles which have been proposed to be substituted, among which, is *exanthisma roseola* or *exanthesis roseola*. Neither these nor any other I have met with have been happily selected,—the whole being founded on a single appearance—and which is not a uniform one, or existing sufficiently expressive of the nature of the disease. Especially, too, may it be objected to the latter, that *roseola* is appropriated already to a distinct cutaneous affection, on which several accounts, I shall

retain the old and more familiar designation of scarlatina. It is here proper to correct a very popular error that scarlatina is intended to express a milder or mitigated state of scarlet fever. Equivalent in meaning, these terms vary only in belonging to different languages.

Doubtless, scarlatina is a disease of modern date. Certain passages have been cited from some of the ancient writings, thought to refer to this, and its affiliated affections, which, on a more careful examination, will not bear such an interpretation. Its introduction into Europe is commonly traced to an importation from Africa, and is said to have first broken out in Spain, in 1610, whence it spread to Naples, where it prevailed eight years afterwards, as an epidemic, with unexampled violence. Fifty thousand persons are said to have died of it in that city, and half a million in the Neapolitan and adjacent territories, before its cessation.

By Sydenham, and subsequently Moreton, some account was given of it as prevailing in London in 1689. But so widely do their descriptions differ, that they can hardly be supposed to refer to the same disease, the one representing it to be very mild, and the other as directly the reverse.

In 1735, it made its appearance in New England, gradually diffusing itself, to a greater or less extent, over this continent. Much confusion, however, exists in the history of the disease, owing to the want of a just discrimination in those by whom it is described, and especially at an early period. No distinction is made in most of these records between it and measles, or even small-pox, except as to gradation of violence,—and so lately as the time of Moreton, and even of Watson, the latter of whom wrote about the middle of the last century, the identity of it and measles was maintained. Bateman declares “that Withering’s publication of it in 1778, or rather the second edition of it in 1793, may be considered as the date of the correct diagnosis of the disease.”

No inconsiderable share of attention has scarlatina occupied, and to which it is entitled, being frequent in its recurrences, extensive in its prevalence, and often exceedingly fatal in its ravages.

Nosologists divide it into three forms, which, however, are to be regarded as the same disease, presented in different aspects. In this state of subdivision, it has received the denominations of

scarlatina simplex, scarlatina anginosa, and scarlatina maligna, the two latter sometimes also called cynanche maligna, or cynanche putrida, and the last, in our own language, malignant or putrid sore-throat.

Not necessary is it to enter into any discussion to establish the identity, except as to degree of severity, of these three forms. Cullen, I think, has satisfactorily effected this, when designing to prove the contrary. Endeavouring to show that scarlatina anginosa and cynanche maligna are specifically different, he has proved their sameness. The several states of the disease have prevailed simultaneously even in the same family, one child having scarlatina simplex, a second scarlatina anginosa, a third scarlatina maligna,—and hence, the common origin of these varieties may be inferred. By the late Professor Gregory, of Edinburgh, who had seen it, this has been stated, and I believe that similar occurrences are not very uncommon, having met with them myself. The several grades of the disease are related to each other, as distinct and confluent small-pox, typhus mitior and gravior, or as autumnal fever in its several modifications. Discerning no more reason, therefore, for thus dividing scarlatina than most other diseases, which are equally marked by gradations of violence, or occasional deviations in some prominent symptom, or affection, I shall disregard the accustomed arrangement, and treat of it as phlogistic or passively congestive, conceiving this to be a much more simple and correct distribution of the subject, and particularly as concerns practical convenience.

An attack of the first or inflammatory description of the disease is mostly preceded by gastric disturbance and praecordial anxiety, lassitude and weariness, some uneasiness of the head, and depression of spirits, chilliness, pains in the loins and limbs, followed by fever, with more than ordinary heat of surface and acceleration of pulse. Contemporary, or nearly so, with these phenomena, soreness of the throat, rigidity of the jaws and difficulty of swallowing, are sometimes, though not invariably complained of, and where such exist, redness and swelling of nearly the whole of the lining membrane of the fauces may be perceived. These affections progressively increase, as the case becomes more developed, the fever being higher, the pulse more vigorous and rapid, the pain of the head, especially in the direction of the frontal sinuses aggravated, the temperature of the skin

so raised as to amount, in some instances, to 108° or even to 110° of Fahrenheit, according to Currie and Willan. Nausea or vomiting, or both, considerable tenderness of the epigastrium, and more praecordial uneasiness, with jactitation and delirium, or tendency to it, are apt to take place, especially on the exacerbation in the evening, which usually happens.

Examining the throat at this time, where the anginose state is prominent, the affection of it will be seen to have correspondingly augmented, the velum pendulum palati, uvula, tonsils, and, in short, the whole of the fauces more intensely florid and tumefied, which state extending up the Eustachian tubes, hearing is impaired, with often severe earache. Considerable as the difficulty of deglutition may be, it is not so great as might be supposed, and seems to be owing more to an affection of the muscles subservient to the process than the throat itself. The tongue, which nearly from the beginning is furred, now presents clean polished edges, with a thick, tenacious coating of the root and centre, and, in some instances, florid elongated papillæ projecting through the incrustation, resembling a sort of vegetation,—while, on other occasions, I have seen it perfectly clean, and of a fiery red appearance.

The eruption appears at the close of forty-eight hours, though, in some cases, it is more delayed, even to double or treble this period, while, in others, its occurrence is exceedingly sudden, with scarcely any premonition, and may, indeed, be the earliest manifestation of the disease. First it comes out on the face and neck, thence successively on the trunk and extremities, and becomes very conspicuous about the loins, bendings of the joints, and on the hands and fingers, which are stiff and swollen. Especially, in the simple variety of the disease, does it also appear on the surface of the interior of the mouth, the palate and fauces, of the same speckled or punctated character as that of the exterior, by which circumstance and the absence of tumefaction, it is distinguishable from the real anginose affection. As to the diffusiveness of the exantheme, there is great difference, sometimes it being nearly universal, and at other times partial or in patches. It consists of a multitude of small points, originally of a pale or dingy red, gradually assuming the scarlet hue, which spread and apparently coalesce, so as to exhibit a blush of more or less extent, of so deep a colour as to "resemble that of a boiled

lobster," the comparison used in one of the best descriptions of it. But carefully examined, the efflorescence will still be perceived to be made up of specks, shaded off from the centre to the edges. The skin continues hot, and is itchy, sore and somewhat swelled.

Not very sensibly influenced is the fever by the appearance of the exanthem,—sometimes, however, it abates, with great relief to the stomach and head, though often it is otherwise, and may be increased. Frequently it remains, in some degree, till the desquamation is completed, which may be very tardily performed. Both the eruption and affection of the throat are also very much controlled by the fever, which early abating, each is moderated, and more speedily subsides. But where it is maintained, the reverse happens, and the throat especially becomes worse. The swelling is greater, and on its surface, aphthæ may appear, sometimes ragged and irregular, soon degenerating into gray or ash-coloured sloughs, or an exudation of lymph takes place, in small portions, or so extensively, as to form an adventitious pellicular covering. By the spreading of the inflammation, and its consequences to the windpipe, a very fatal variety of croup is produced. The result, on the contrary, promising to be favourable, the sloughs as well as the membrane separate, and are detached about the eighth or tenth day, leaving the surface beneath clean and healthy.

What has been said is applicable to an average of the inflammatory state of the disease. But it is sometimes infinitely milder, and with little or no affection of the throat,—while on other occasions, it presents a far graver and more complicated aspect, all the symptoms, general and local, being highly exasperated.

Congestive scarlatina, though retentive of the common characteristics of the disease, receives the complexional hue which is always bestowed by the operation of the typhoid influence or condition. Commencing with many of the initiatory phenomena, noticed under the preceding head, the peculiarities of this mode of attack are soon manifested. For the most part, reaction is exceedingly feeble or imperfect, and may not at all take place. The collapsed state is marked by a weak pulse, cold skin, doughy countenance,—the head rather stupid than aching,—the stomach dreadfully distressed, the respiration laboured, with deep sighing,—the whole attended by extreme debility, and

a disposition to syncope. It may, however, happen that, after a while, the system emerges from such heavy oppression, or it being less, some vigour is displayed by a full, soft, compressible pulse, an intensely hot, dry surface, amounting even to the *calor mordax*, with pain in the head, suffused eyes, turgid countenance, of a somewhat purplish hue,—tenderness of the epigastrium, or of a lower portion of the abdomen, accompanied by vomiting or purging, or both. But this excitement, usually evanescent, is succeeded by a sudden and alarming prostration of vital power.

Be the early stage as it may, the subsequent career of these cases does not materially vary. As they proceed, the typhoid condition becomes more confirmed. The tongue, at first heavily furred, is now thickly coated of a dark brown colour, at the root and middle, with the vegetations formerly mentioned, while the edges are red, clear and dry. The face is bloated, and may be livid, the eyes fatuous as in inebriation, the intellectual faculties depraved by low delirium, attended by nervous tremors and automatic motions of the hands. Convulsions are here common, sometimes in rapid succession, ending in coma, or, at least, in heaviness or stupor. Excepting the brain be deeply implicated, when the pulse is slow, it is very rapid and weak, and the stomach evidently suffers, sometimes without vomiting, its powers being so paralyzed, as it were, as to prevent it,—though its contents, consisting of a dark, granulated or flocculose fluid, are ejected by a sort of spasmodic effort of the diaphragm analogous to singultus. More generally, in this modification of the disease, are the pulmonary organs involved. Early betrayed by cough and hoarseness, with defluxions from the eyes and nostrils, these are speedily followed by very embarrassed breathing, with wheezing and rattling, from the immense secretion of vitiated mucus. In the state of excitement which has been noticed, though the eruption may come out very quickly, even earlier than in the inflammatory form of the disease, it is oftener postponed to a longer period,—alternately appears and recedes,—is in patches of a pale, rapidly changing to a mahogany or livid purple colour, forming the scarlatina purpura of writers,—in some instances becomes widely diffused, and in others it never appears. The same may be said of the anginose affection. During the prevalence of the disease in the winter of 1834, in this city, more than a dozen cases came

under my observation, and in one family three persons, whom I attended with Professor Jackson, without either affection. Each sunk in a few hours, under the oppression of the early or collapsed stage. These cases were known to be *scarlatina* from the disease unequivocally developed, co-existing in the same house. Commonly, however, the throat seriously suffers, and very often independently of the skin. The epidemic to which I have just alluded, abounded in such examples, as well as of the contrary, or the efflorescence alone appearing.

In the character of the throat affection there is some difference from that of the inflammatory disease. Equally pervading, less tumefaction, however, prevails, and it is of a darker complexion. Much more apt, too, is the surface to be covered by a membrane which here is usually thick, soft and pultaceous, and should aphthous ulceration exist, this very rapidly and widely spreads, discharging an acrid, ichorous fluid, which, passing out of the mouth or nose, or both, excoriates the parts it touches, and the *fætor oris* is excessive. Concomitantly the voice is hoarser, the respiration extremely oppressed—deglutition more difficult, with increased rigidity of the jaws, and there is a constant though ineffectual effort to disengage and bring up the irritating matters. This state of things not being arrested, heavy stupor supervenes, with sometimes petechiæ or vibices and passive hæmorrhage or colliquative diarrhœa—the pulse so diminutive as scarcely to be felt, and finally death takes place from absolute exhaustion, if not more abruptly by some cerebral, laryngeal or pulmonary affection.

The duration of the disease is from a few hours to eight or ten days, according to the nature of the attack, being, in this respect, subject to many deviations. Going through its career with regularity and benignantly, it will be mostly found that, on the fourth day, it has attained its height, on the fifth the efflorescence begins to decline, on the sixth it has nearly faded, and on the seventh entirely gone, leaving the skin dry and rough. In some rare instances, however, which have been recorded, there has taken place, just in anticipation of the disappearance of the rash, an eruption more or less vesicular or pustular, sometimes resembling varicella, and, on other occasions, variola so closely, as to have been denominated *scarlatina varioloides*. No such have I ever met with, and whether it be the consequence of the original dis-

ease, or a distinct affection developed on the subsidence of the preceding one, I cannot say.

From scarlatina mostly prevailing as an epidemic, its production has been assigned to the occult and mysterious agency of such diseases. But, however its propagation may be promoted or its character affected by an influence of this kind, there can be little doubt that its immeditate cause is a specific contagion, conforming, in this and other respects, to the diseases to which it is most closely allied. Like these, it destroys the susceptibility to a second attack. By Withering and Willan this is positively asserted, they never having witnessed an instance to the contrary—and Bateman states that the fact is fully ascertained and accredited. Nevertheless, the infallibility of the protection has been denied, and examples of failure are cited by respectable writers, among which is Richter, who avers that a second and even a third repetition of attacks have been noticed. None such have come under my own observation. But I have sometimes seen the attendants on the sick, though previously having had the disease, to be seized with sore throat, without any eruption, and which, I believe, is no uncommon event. Considering the resemblance of several of the eruptive fevers to scarlatina, and the uncertainty of the diagnosis, it may be conjectured that not a few of the alleged repetitions of the disease were not really so, the antecedent or subsequent attack being of some other of the imitative affections. But admitting the fact of such recurrences, scarlatina still rests, in this respect, on the same footing with variola and other diseases of acknowledged contagiousness.

It is questionable at what stage scarlatina acquires this property, prior to, or after the eruption. Many believe that it is most active during the desquamation, and, at all events, it seems to retain it till this process is completed,—the scales being impregnated with the virulent secretion of the skin. Yet the disease cannot be propagated by inoculation with matter procured from this or any other source. Contrary statements have been made, I am aware, though on no good authority. To *somites* of various kinds it adheres very tenaciously for a long period, with an entire preservation of its efficiency, in proof of which, we have some striking facts. My friend, the late Dr. Percival, of Dublin, imputes the introduction of scarlatina into that city to a

box of toys from London, which had been exposed to the contagion. That the disease was propagated in this way, however, is hardly to be credited, and the story seems to me very like the famous report of Hildebrand, who assures us, that as soon as he arrived in Padolia, scarlatina broke out and spread most widely, which he ascribes to the retention of contagion in a coat he had worn in the disease a year previously in Vienna. Nevertheless, the long continuance of infection in apartments where the disease has existed, though every purification be practised, is unquestionable. Elliotson, of London, states, in confirmation of it, "that all the children admitted into a particular ward in a hospital under his care, were seized with scarlatina for nearly two years, in consequence of a patient with the disease having been in the ward at that remote period, and this in despite of white-washing and other cleansings."

Extraordinary as this may appear, it is by no means incredible, and is supported both by some further facts and by analogies. Not to refer to other instances, in the summer of 1834, I attended a boy in the disease, whose parents being exceedingly anxious that their other children should escape it, had them all immediately sent away. Every article of the furniture of the room,—the carpet, the bed, &c., and his clothes were removed. Besides this, the freest ventilation was practised, and the fumes of the chlorate of lime filled the whole house for several days. Notwithstanding these precautions, twelve weeks afterwards, on the return of the children, three of them became speedily affected through the medium of some domestic fomites, probably, as they were not knowingly elsewhere exposed to the contagion.

Nothing more occurred here than has been reported again and again of variola, typhus, and even of puerperal fever. Five or six years ago, the latter broke out in the lying-in ward of our hospital, and though, on its cessation, every means of purification was adopted, no sooner was a woman delivered in the ward than it reappeared, and in a very fatal shape. Each successive year, for three terms, was the ward closed against admissions, the process of purification again repeated, and still, on the reintroduction of parturient women, after a protracted interval, the result was the same, and the ward was finally abandoned.

As to the sphere in which the contagion of scarlatina operates, we have no precise information. But it may be presumed to be

similar to that of variola and the other diseases of the same class, which is very limited.

The incubative period of the contagion is said to be from five or six days. My own conviction is, that it is usually greater, though I speak diffidently on the point, having been unable to satisfy myself in regard to it. Equally subjected apparently to infection, I have seen individuals break out with the disease, from the third to the eleventh day, and we have had some cases lately reported, where, in a family of eight, the interval varied from the seventeenth to the twenty-sixth day, the average being seventeen days.

No season is exempt from scarlatina, though it is most apt to prevail in winter or spring. But I have seen it during the hottest weather, and, indeed, at all seasons. Children are chiefly liable to it, as they are to every similar affection, for no other reason, probably, than that persons in more advanced life have previously had it. Yet I have never known a very young infant to take it, however exposed. By Sir Gilbert Blane it is asserted, that "he never saw an individual, except one, affected by it turned of forty." I have met with it several times in people much older, and once with the late Professor Dewees, in a very aged man near eighty. As one of the peculiarities of the disease, it has, too, been observed, that, on some occasions, it is restricted to children, and others to adults, and those a little more advanced. Emphatically does Reil declare, that he had witnessed an epidemic scarlatina which was almost exclusively confined to persons between fifteen and twenty-five. Females are represented to be more liable to it than males, on no adequate evidence, however, I suspect. The annexed table, which is formed from a register of the Fever Hospital, of London, of two hundred cases of scarlatina, has been cited by some to show the relative frequency of the disease in the two sexes at different ages. But it is very imperfect in these respects. Children under six years, we know, are excluded from the hospital, and there may be some other regulation or circumstance which determines, in a greater degree, the admissions of females.*

	Age.	Males.		Females.		Total.
* From	6 to 10	7	"	8	"	15
"	10 to 15	8	"	15	"	23
"	15 to 20	17	"	40	"	57

The difficulty that may exist relative to the diagnosis of scarlatina must arise chiefly from its occasional similarity to measles. Even here, embarrassment can seldom be experienced, should it be reeollected that, in measles, the symptoms are more conspicuously ophthalmic, catarrhal or pneumonic, that the eruption comes out usually on the fourth day in blotches somewhat elevated, so that the surface does not exhibit a uniform blush, and that these blotches, running into each other, assume a crescent shape, the whole being of a faint reddish complexion: while, on the contrary, that scarlatina is preceded by gastric and cerebral derangement,—that the eruption occurs in half the time, consisting of minuter specks, seldom at all raised, is infinitely more diffused and of a scarlet colour. The case being of an anginose nature, all ambiguity ceases, for though the throat is sometimes sore in each disease, it is in a manner so different as not readily to be mistaken. Generally, in measles, it may be perceived to be merely an extension of the exantheme of the surface to these parts. Much reliance may also be placed on the singular appearance of the tongue, and the extreme acceleration of the pulse in scarlet fever.

As bearing an analogy to scarlatina, it ought also to be mentioned that an efflorescence, frequently with sore throat, is to be met with, especially in children, having the popular title of scarlet rash. From it, however, it differs, in the first place, in being usually occasioned obviously by suppressed perspiration or disordered stomach, from an excess of food, or certain peculiarly offensive articles, and secondly, by the speedy occurrence of the eruption without much or any previous ailment, and is rather a blush or suffusion than speckled. But I have seen it, on several occasions, dotted like scarlatina, and, owing to some unintelligible cause, of a pretty wide prevalence, several of a family

“ 20 to 25	14	“	39	“	53
“ 25 to 30	8	“	21	“	29
“ 30 to 35	6	“	10	“	16
“ 35 to 40	1	“	2	“	3
40	1	“	0	“	1
42	0	“	1	“	1
48	0	“	1	“	1
57	0	“	1	“	1
	—		—		—
	62		138		200

being attacked in rapid succession, and still further spreading through the community. This is probably a variety of roseola, which is not contagious, or gives any security against scarlet fever. Nearly always, too, does it occur in very warm weather, and particularly during protracted droughts. Moreover, I have met with repeatedly in winter, and uniformly, I think, when snow was on the ground, an affection bearing a still closer resemblance to scarlatina. Children acquire it mostly, or perhaps exclusively, by becoming heated from playing in the snow, and then suddenly chilled. The collapse is often very considerable, followed ultimately by febrile reaction, much cerebral disturbance, delirium, stupor, and sometimes convulsions, sore throat, nausea and vomitings, and by an eruption so scarlatinous in its aspect, that it may be readily mistaken for that disease. Nor is it scarcely less fatal. Death I have known to take place from it even in a few hours, from an inability to arouse the system out of its torpor, or by convulsions.

In simple scarlatina, little danger is ordinarily to be apprehended. Yet, in some instances, it most unexpectedly becomes alarming, when apparently it had been doing perfectly well, by a sudden sinking of vital energy, or by its being raised into an exasperated state with diverse complications. No disease, indeed, is more treacherous, or which requires greater vigilance. Two children, whom I attended in consultation, on different occasions, died almost immediately after our leaving them, though at the time of our visits, they appeared to be doing well, the first in the early, and the second in the advanced stage of the disease. Examples of a similar kind are numerously recorded, and are probably familiar to every practitioner of large experience.

The other varieties of scarlatina are always to be dreaded, and the malignant condition of it, especially when epidemically prevailing, is sometimes as fatal as the plague itself. The memorable occurrence at Naples of such mortality has already been referred to, and I may now add those subsequent recurrences of the disease described by Moreton, Huxham, De Haen, Sims, Fothergill, &c. We are, indeed, told that when it prevailed in Paris, in 1743, so indomitable did it prove that not a single individual recovered, and numbers perished within the short space of a few hours. But, on the contrary, it sometimes appears epidemically in the character of extreme mildness, as recorded by

Moreton, Sydenham and other authorities. It is one of those diseases that very conspicuously appears to have its cycles in which the most opposite character is presented. The whole history of it warrants this conclusion. It has so prevailed from the earliest settlement of our country. Nearly half a century ago I recollect it as the terror of our community, and so it continued for some time. But, from about 1801 to 1830, it recurred at certain intervals, uniformly with such extraordinary benignity that it rarely gave any trouble or anxiety in the management. I have heard the late Professor Physick declare that, during this lengthened period, he did not lose a patient in it. For the last ten years, however, it has proved very much the reverse, some seasons highly malignant and frightfully fatal, as well immediately among us as elsewhere.

An attack indicates a happy issue, whatever may be the form of the disease, where the eruption comes out in due season, is widely spread, of a bright red, regularly passing through the several stages to desquamation. The throat being affected, it is of favourable import to have the tumefaction considerable and florid, with painful deglutition—and, should any exist, white instead of gray or dark sloughs, the whole attended by moderately inflammatory fever. Every thing, in short, depends on the degree of reaction, the want of which almost invariably proves fatal, and, when present, a different result may as confidently be anticipated from skilful management.

Feeble exertion of the vital forces, with heavy, passive congestions, the common consequence of it, or intense fever with complications, is very unfavourable, though the former infinitely the more so. Any material deviation in the efflorescence from its common character and order—the eruption too early or late, or alternately coming out and receding, or its appearance in blotches only, or an entire absence of, or permanent repercussion of it, or its having a pale or livid or mahogany colour, or its rapidly changing from the one to the other of these hues, or if attended by petechiæ or vibices, or passive hemorrhage, are all of the worst imports.

To have the throat affected, without any eruption, is bad, it denoting a concentration of the disease on the internal organs, and especially when the lesions are extensive and the aspect dark, with aphthous ulcerations. Even more so, however, is the

affection of the windpipe, from which recoveries very rarely take place. Nor scarcely less to be dreaded is a deep implication of the cerebral and nervous systems, or of the pulmonary or abdominal viscera, or a gangrenous state of the fauces, or diarrhœa of acrid matter, or copious discharges of pallid urine, with an exceedingly quick and diminutive pulse, anxiety, jactitation and inquietude. These symptoms, indeed, indicate imminent peril, and mostly prove the immediate precursors of death. By Reil it is said that a white streak passing down on each side of the nose and encircling it below, is a mortal sign, which, however, no one else has observed. I have only to add, on this point, as a fact of importance, that, whenever the disease is excited by an exposure to cold, it is prone to present the malignant congestive form, and is very difficult of cure.

Not much is recorded of the anatomical characters of scarlatina. Yet it may be collected, from the dissections which have been occasionally reported, that the mucous tissue of the primæ viæ, particularly of the stomach and upper intestines, is highly inflamed, and scarcely less frequently are the lungs, with the brain, in their substance and membranes, in the same condition. More recent researches have also revealed similar derangements in the follicular structure of the bowels, to those previously discovered in several other diseases, and especially that form of typhoid fever now receiving the title of *dothinerteritis*. Louis tells us that in five subjects, the only ones which he had examined, he found, in the lower portion of the ileum of the whole of them, the solitary glands affected, and hence is inclined to infer that such, if not a uniform, is a pretty constant lesion. But, from what I have observed myself, I suspect that, in this city at least, it is a very rare and purely accidental occurrence, having no necessary connection whatever with the disease.

Cases, on the contrary, are met with, where, with some slight and weak phlogosis, the heaviest passive congestions are detected in nearly all the organs of the great cavities, and diverse effusions and extravasations are common events. These differences of appearance are referable to the opposite conditions which the disease presents in its most fatal forms.

Extensive sphacelation, in the anginose variety, is found in the fauces, and instances are mentioned in which it partially existed throughout the alimentary canal. Lately some contro-

versy has arisen as to the precise state of the throat, whether the appearances hitherto supposed to be sloughs from gangrenous inflammation be really so, or are exudations of coagulate lymph, from the inflamed surface, imitative of sloughs. Either may undoubtedly exist. Deep ulcerations I have witnessed, and also the coating of lymph, counterfeiting sloughs so accurately as readily to lead to the deception. There is here sometimes a perfect membrane, which, dipping into the larynx, has traveled down through the trachea into its final ramifications. This adventitious production, however, to such an extent must be a rare occurrence, it being, at least, as I have seen it, uniformly restricted to the larynx, and much oftener in pieces, than as a whole lining of that structure. It differs from a mere pellicle, to a coating of considerable thickness and softness, even sometimes of a pultaceous consistence and aspect. These are the principal lesions hitherto noticed, in which little peculiar or distinctive is to be remarked. Dissection, indeed, has as yet shed no light on the nature of scarlatina, or the other exanthematous fevers. The fact, indeed, is sufficiently confirmed, that sometimes nothing whatever was detached of an abnormal character, owing, most probably, to death taking place from the immediate effects of the poison, or before it could produce any appreciable changes.

From its analogy to that of the exanthemata of which I have treated, I mean to say not much concerning the pathology of this disease. Like its congenera, the primary impression is mainly on the primæ viæ, and the subsequent implication of other organs must be referred to a sympathetic or actual extension. The argument by which this view has already been sustained, in relation to the other cutaneous affections, might be applied with equal force to it. Much of the peculiarities, as well as the grades of violence of the disease, is owing to the difference of intensity in which its specific contagion operates. It is a poison from the effects of which the system endeavours to extricate itself, and according to its resources is the result. They being energetically applied, we have an open, inflammatory form of the disease, and conversely, a low congestive state, should they be feebly or incompetently exercised. Death, which is thought by many to be occasioned in the anginose variety of it, by the state of the throat, does not seem to me to be justly assigned. This topical affection can rarely be productive of such an event,

except when it is extended to the larynx. The disease is singularly pervading, characterized by great sensorial and nervous disturbance, and by an almost unexampled derangement from inflammation or congestion, or both, of nearly all the important organs. By such lesions it is that the constitutional powers become impaired, and ultimately extinguished. The throat suffers in common, runs into gangrene from the loss of vitality, and perishes with the rest of the body.

Little else is required in the cure of mild scarlatina than the ordinary antiphlogistic regimen,—watching, at the same time, its tendency to those unfavourable changes formerly pointed out. None die of it, says Sydenham, except from too great officiousness in the practitioner. This may be too strongly predicated, though it is still true, that the “nimia medici diligentia,” here, as well as in the exanthematous fevers generally, is mischievous. Nature has established, in all these cases, a certain mode of relief, consisting in the exoneration, in part or wholly, of the internal tissues, by translating the irritation to the skin;—and where she appears to be adequately effecting this end, it were better not to interfere with her endeavours. It is on such occasions that the old maxim applies, “Nulla medicina, aliquando optima medicina.” Certainly I have witnessed, again and again, from the harassing effects of active measures, the very worst consequences, converting what was originally mild and proceeding well, into a fearful degree of exasperation and danger.

Nevertheless, in the several presentations of the disease, either of a decidedly inflammatory or congestive character, the practice must be correspondently energetic, and, in order to succeed, be accommodated to these respective conditions. Let us first consider the course adapted to its phlogistic form.

The initiatory step depends on the stage of the case. Consulted early, or while there is rather irritation than positive inflammation, it will be well to commence with an emetic. Commended highly by Tissot, Stoll and the generality of writers, I have reason to believe it proves exceedingly influential in mitigating the future career of the case. It is said, indeed, by Dr. Richard Harrison, who, I understand, is an eminent practitioner of London, that the effect was so strikingly manifested in the disease, during an epidemic prevalence of it in that city some years ago, that, by many, the practice was reluctantly pursued, since the premature

eradication of one attack was usually followed by another in a few days, and hence it was deemed better to postpone the emetic till the disease had taken such hold of the system as to do away any susceptibility to a future renewal of it.

My own observations, though decidedly in favour of this practice, do not corroborate this statement to the extent here made. Withering, however, who is one of the best writers on scarlatina, goes almost as far. "In the very first attack," says he, "a vomit seldom fails to remove the disease at once; if the poison has begun to exert its effects upon the nervous system, emetics stop its further progress and the patients quickly recover; if it has proceeded still further, and occasioned that amazing action in the capillaries which exists when the scarlet colour of the skin takes place, vomiting never fails to procure a respite to the anxiety, the faintness and delirium." But whatever difference of opinion may be entertained as to the general use of emetics, I think there can scarcely be any concerning their applicability to the anginose form of the disease, and especially when complicated with the affections of the windpipes or lungs, the most ample experience having demonstrated their singular adaptation to such cases.

Next in importance are evacuations of the bowels by mild laxatives. Febrile excitement, however, being developed, and the more so, when accompanied by any prominent topical affection, the loss of blood by venesection can no longer be postponed, to be proportioned to the degree of the emergency. Yet it must be confessed that great difference of opinion prevails among writers as to the propriety of venesection. Most of those of the continent of Europe are in favour, while the preponderance of English authorities is opposed to it, as reducing strength without affording any relief. This is the language of Sims, Withering, Clarke and Willan, the latter of whom declares that he never saw a case of scarlatina in which blood-letting seemed to be indicated. Exceptions, however, exist among the English to this condemnation of the practice. Moreton pursued it, Cullen seems not indisposed to it, and Armstrong enjoins it where there is visceral inflammation.

This contrariety of sentiment, in relation to the remedy, I presume must be referred to its having been applied under opposite circumstances of the disease, and, of course, attended by very different results. Directed with discrimination, it cannot fail, according to my experience, to be beneficial, and often even indis-

pensable. Convinced of this, my own practice, indeed, and which is that of our physicians generally, is to bleed in nearly every case of high and active excitement. Yet it is true that the loss of blood has no direct curative tendency in the disease, it only abating action, without changing or subverting it, and as usually not well borne to any great extent;—it is not safe to detract it with the same freedom as in the more purely phlegmasial affections, or, perhaps, to the amount that the existing indications in the case itself would seem to demand. Collapse, frightful and sometimes even fatal, I have repeatedly seen to result from an abuse of the practice, and it is always hazardous in an advanced stage of the disease. Local affections merely may be removed by leeches or cups.

More, perhaps, than in any other disease is this state of scarlatina characterized by heat of surface, and here cold applications are obviously called for, and prove immensely serviceable. Either ablutions or sponging I have preferred. Not content, however, with these modes, some of the European practitioners contend for the superior efficacy of aspersions, or even immersions, in the coldest water. But these have always appeared to me as very rash expedients, and I have heard of the latter proving even fatal. By Dr. Roper, of South Carolina, who graduated at Edinburgh some years ago, I was told that the professor of the practice of physic in that school, to show his confidence in the practice, tried it on one of his own children, who died while in the bath by a sudden recession of the eruption—and a similar result, in another instance, is mentioned by Armstrong, from affusion only. Yet Currie informs us that he was in the habit of stripping his patients and dashing buckets of cold water on them, from which such benefit accrued that the disease was usually cut short in its progress. Many, at the time, adopted this practice, and bore evidence to its distinguished success. Even Bateman commends it in the very beginning, though subsequently he thinks every advantage may be attained by simply washing the surface. Caution should certainly be observed in this and every other eruptive fever, in the use of the remedy, from the danger of repercussion, and never ought it to be resorted to without just discrimination.

With me it has been a rule to restrict its application exclusively to the simplest form of the disease, where reaction is complete, the skin steadily warm, and without any serious complication

of the throat or the thoracic or abdominal organs, particularly the bowels. Commonly cerebral affections, whether delirium, coma or convulsions, are eminently benefited by it, and here even ice to the head is sometimes proper. Thus accommodated to the case, I cannot express too strongly my confidence in these applications. Of all remedial means, I think I have derived from them the most unequivocal advantage, and often scarcely any thing more was exacted in the cure. Cases, indeed, I have treated successfully by them only. They lower excitement, reduce the frequency of the pulse, allay the heat of the skin, sometimes rendering it soft and perspirable, and seldom fail to relieve the disorder of the brain, calm the general inquietude and compose to sleep. But, to prove so effectual, the spongings or washings must be pretty constantly made to the entire superficies of the body, to the trunk and extremities, to be discontinued only when a degree of coldness is occasioned that might be followed by chilliness and collapse, or retrocession of the exantheme. More seems to me ascribable to cold in scarlatina than can be explained by its usual mode of operation. Not improbable is it that, while mitigating undue excitement by its sedative agency, it also proves more directly the corrective of the effects of the specific virus causing the disease. The hypothesis is supported by abundant analogies. Few, indeed, are the affections proceeding from a poisonous influence, in which the same sort of counter agency or antagonizing power is not displayed by it. Might not cold enemata, under such circumstances and with similar restrictions, prove useful? They are so in other ardent fevers, and here, from the extraordinary warmth, in some instances, both of the internal and external surfaces, would seem, *a fortiori*, to be exacted. But, having no experience, I throw out the suggestion merely as a plausible conjecture.

Nothing is to be anticipated from the diaphoretic febrifuges at this period, which, owing to the state of the skin, rarely or never promote perspiration, or in any way diminish febrile action. Failing in the former respect, they are apt to be positively detrimental by harassing the internal surfaces, leading to a general exasperation of condition, and, such an effect being apparent, they should at once be discarded. It is, however, of the highest importance, at this conjuncture, to restore the cutaneous functions, for, while these are suspended, it is impossible to overcome the

disease or to produce any sensible amendment. Not relieved, the skin, indeed, may have its vitality so far impaired as never to be recovered, and in this mode, I believe, has often proved the cause of death, exactly as happens in small-pox and other similar affections.

The depleting and evacuant remedies enumerated, as well as the cold applications, are well calculated to effect this great end. But they are sometimes incompetent, and having been fairly tried, without avail, other and opposite methods must be adopted, the best of which is tepid sponging or immersion in warm water, or the vapour bath, repeated from time to time, till coolness, relaxation and softness of the integument are induced. Even these, too, do not uniformly succeed, especially when too long postponed, or the skin is deeply affected, and in such an emergency, advantage might possibly be derived from some of those emollient applications employed in erysipelas, scalds, &c.

In the passively congestive variety of scarlatina, which is now to claim attention, the attack, as formerly mentioned, may be introduced by a very protracted collapse. The leading object here is to arouse the recuperative powers, and to bring on due reaction, the means of effecting which, having been detailed on a preceding occasion of essentially similar character, they need not again be recited with any particularity. Enough may it be to state that they consist of the warm bath, or what is preferred by some, aspersions of the water, to be succeeded by frictions or sinapisms or blisters to the extremities, and, above all, over the epigastrum, with hot cordial beverages, or some of the more active diaphoretics.

It has occurred to me, extraordinary as it may seem, that even here cold applications might possibly be beneficial. Considering the decisive control they exercise over the deleterious agency productive of the disease, I was inclined to this conclusion, and the more confirmed in it by the contemplation of some facts lending to it no insignificant support. I had seen, among other striking instances, several cases of Asiatic cholera, which undoubtedly proceeds from some peculiar virulent cause, in the deepest shape of collapse, where, resisting all stimulating and arousing means, readily reacted by frictions with cakes of ice to the whole cutaneous surface, and the freest consumption of this article internally. The practice, however, I have never ventured to extend to scarlatina.

Having attained the object in view, namely, perfect reaction, then an emetic, and afterwards purging with calomel, constitute the approved means. These are held to be by some of the highest authorities, as far more appropriate to this than the other form of the disease. They are thought to cleanse the primæ viæ, prevent or remove congestions and excite the cutaneous surface.

To a greater extent, however, than any one else, was Hamilton, the author of a work on purgatives, addicted to purging. "Many years ago," says he, "when the prejudices against purgatives were more decided and prevalent than they are at this time, I continued to prescribe them. My doing so was indeed the necessary consequence of the advantage I had experienced from the same remedies in typhus. I had learnt that the symptoms of debility, which take place in this species of fever, so far from increasing, were obviously relieved by the evacuation of the bowels. I was therefore under little apprehension from them in scarlatina. I have never witnessed sinking or fainting, as mentioned by some writers, and so much dreaded by them: neither have I observed a revulsion from the surface of the body, and consequent premature fading, or, in common language, the striking in of the efflorescence from the exhibition of purgatives."

Considering how exceedingly vitiated are the secretions usually in this form of the disease, and the irritation which they must create when collected in the alimentary canal, the propriety of removing them seems scarcely disputable. Nevertheless, I suspect the practice has been abused, as well by a too indiscriminate recurrence to it, as by urging it to excess. Restricted to its legitimate purpose, and I think there can be no doubt of its safety and usefulness.

Less easy is it to decide on the expediency of venesection. The abstraction of blood appears to be required by the loaded state of the organs, and contra-indicated by the depression of the vital energies. My own conviction is, that it should not be hazarded, unless reaction is pretty firmly established, the circulation in some force, and the skin warm, and even then is to be resorted to with extreme circumspection. Much safer is topical bleeding by leeches or cups, and under equivocal circumstances, should be invariably preferred.

The case, however, becoming more unequivocally typhoid, a resort must be had to a combination of calomel, opium and ipe-

cacuanha, repeated every hour or two. The mercurial practice of late so strenuously recommended by some, originated in this country. More than a century ago it was employed by Dr. Douglass, of Boston, in an epidemic scarlatina of that city, who extols the superior efficacy of it in a publication on the subject. Commencing with calomel as a purge, he next urged it to a salivation. But the latter, in contradiction to his reports, I should think hazardous. It is better to aim only at its alterative effects, and such seems to be the end for which it is now, by common consent, directed. The difficulty, indeed, of salivating in this disease is very great, and there are writers who deny that it ever takes place. No doubt it is among the rarest of occurrences in the disease itself, though, on its subsidence, comes forth fully, and if not productive of more lamentable consequences, which it often is, very seriously interferes with the progress of convalescence and the comfort of the patient. I am inclined to suspect that Douglass mistook the salivation, which is a common incident to scarlatina, with affection of the fauces, for the mercurial effect.

While thus conducting the general treatment, the affection of the throat, should it exist, must not be neglected. The best remedies for it in the beginning, are topical bleeding, blistering and warm poultices.

Whatever may have been the precise character of the disease in the early stages, when exhaustion supervenes, there is considerable uniformity as to the plan to be pursued. An appeal is to be made to those means by which the resources of life are renovated or strengthened, and of which carbonate of ammonia, camphor, wine whey or wine itself, or even diluted ardent spirits, and opiates, if not especially contra-indicated, are usually confessed to be the most efficacious. But the muriatic acid was at one time exceedingly confided in, having been introduced by Sir William Fordyce, who gave the strongest assurance of its efficacy, directing it with some bitter infusion, as that of the bark especially. Limited in its application to the hæmorrhagic or petechial states of the disease, its utility is presumable, and further, I know not the indication it promises to fulfil. By some of the West India practitioners, the compound infusion of capsicum, to be noticed presently as a gargle, is considered, also, as among the very best of internal remedies, in the dose of two tablespoonfuls, occasionally repeated. Nothing, however, have I found at this conjuncture comparable to the sulphate of quinine, alone or with

an opiate, and the dulcified spirits of nitre, as may be indicated, aided by some cordial drink. Not much is here gained by blisters or sinapisms. They rarely excite the skin, and when they do, the inflammation is very apt to degenerate into gangrene. But stimulating frictions are serviceable.

We must again revert to the anginose affection, which, changing with the progress of the disease, requires a modification of treatment. On the occurrence of the aphthous appearance, mild detergent gargles are to be resorted to, and when sloughing commences, those of more activity, such as barley-water, with the sulphuric or muriatic acid, or a decoction of Peruvian bark with these acids, or the tincture of myrrh diluted, or an infusion of capsicum, prepared in the following mode.* Gargles of the chlorate of soda or lime are beneficial. But the best application I have tried is that of the powder of burnt alum. The sloughs being detached, leaving an unhealthy surface, the black mercurial wash, or a solution of the sulphate of copper or of the nitrate of silver may be used. If, instead of ulceration, the fauces are covered by a membranous exudation, it is proposed for its removal, to apply the lunar caustic or muriatic acid mixed with honey. But I believe here, too, the burnt alum is preferable. These articles are all applied by a mop, or large hair-pencil. Emetics are recommended in each case with a similar intention, or to cleanse the throat, and to institute a more healthy action. The sulphate of mercury has been praised, particularly for this purpose, though I suspect it has no just claims to a preference. Nor is vomiting less deserving of regard as an emulgent of the bronchial structure, when heavily oppressed by accumulations of viscid secretions or other matter.

This concludes the medical treatment of scarlatina in its several modifications.

Of regimen I have to observe, that it should harmonize with the remedies. The diet in the decidedly inflammatory states must consist of cold mucilaginous beverages exclusively, and if other drinks be urgently desired, which happens in very heated conditions, water may be allowed of icy coldness, in small quantity. Even ice itself is admissible. Let, also, the freest ventilation be practised in hot weather, and the patient very slightly covered. But under other circumstances of the disease, the

* R.—Caps. ind. Coch. mag. ij.; Sodæ muriat. Coch. min. iss.; Aq. bull. Hbss.; Acet. acid., ib. Infus. et. collat.

course is reversed. Either the eruption refusing to come out, or showing a disposition to recede, or the skin being cool, the pulse feeble, or any other evidence existing of typhoid prostration, a higher degree of temperature must be observed, the diet more nutritious, and the drinks warm, and, perhaps, cordial and moderately exciting. These observations are alike applicable to all the exanthematous fevers.

During convalescence, in most of these affections, and especially in scarlatina, a susceptibility to disease is retained, readily excited by the slightest cause. Dreadful consequences I have repeatedly known from exposures to cold, and by improper eating and like indiscretions. Carefully are these to be guarded against. But independently of such imprudence, though occasionally to be traced to it, are certain sequelæ or effects to which our attention is often called. Cases are to be met with of enlargement of the parotids or testicles, suppuration of the ears, various pectoral or gastric or enteric affections, hydroptic effusion or great derangement of the nervous system, expressed by palsy, chorea, hysteria, epilepsy or neuralgia, as well as chronic cutaneous eruptions, mostly herpetic, and the development of scrofula, &c. The most common, however, of these consequent affections is a hot, dry, harsh, unperspirable state of the skin, and especially when desquamation has not taken place. The functions of the surface, so essential to the order of health, are hence not performed, fever is kept up or revived, with a most harassing degree of itching, preventive of all quietude or sleep, and chiefly occasioning, as I believe, most of those very affections I have enumerated, and particularly, hydroptic effusion. As the cause of so much mischief, this condition of the tegumentary tissue should always be removed without delay, and the most effectual means of doing it is tepid bathing, either by the sponge or immersion in a bath, taking special care to avoid any exposure to cold. Yet it may be necessary, where excitement is high, to bleed and purge moderately, and next resort to the mild diaphoretics. But from bad management or otherwise, dropsy is so very frequent an occurrence, and as it, of the several affections, alone exacts any peculiarity of treatment, it presents here an exclusive claim to consideration.

Generally it appears as œdema of the lower extremities or of the face and neck, though there are numerous instances of effusion also into the cavities. Bateman truly remarks that when the anasarca becomes general, a sudden effusion occasionally

takes place into the cavity of the chest, or into the ventricles of the brain, causing death in a few hours. Cases of this kind I have frequently seen. Nay, it sometimes happens in relation to the brain, without any appearance whatever of dropsy, and under circumstances to preclude even a suspicion of a tendency to it. Examples of the kind are, perhaps, not very unusual, and among others which have come under my own notice, I lately saw a child seemingly well of scarlatina, die in a moment from a convulsion, where the ventricles were filled with water, and a young lady, in consultation with Dr. Morton, deemed to be no less recovered from the disease, who almost as suddenly expired in the same manner.

Contrariety of opinion prevails as to the management of this secondary dropsy. The fact is, that it is connected with such opposite states of the system, that no one plan is suited to all the cases. Existing, which usually happens, with an accelerated, hard and febrile pulse, unrelenting skin, deficient urinary secretion, the little that passes away depositing a lateritious or pink-coloured sediment, or of an albuminous nature, there ought to be no hesitation as to the propriety of venesection, the saline purgatives, the mild diuretics, the nitrate of potash or the tremor tartar especially, with a very low diet.

Treated differently, it invariably proves obstinate or fatal, of which Burserius gives a very striking illustration. Early in the last century, an epidemic scarlatina prevailed at Florence, followed in nearly every case by more or less œdema, pulmonary oppression, fever and diminished urination. Tonics were for a time tried, under the use of which the dropsy was greatly aggravated and the mortality considerable. Dissection, however, disclosing inflammation of the lungs, alimentary canal and kidneys, venesection, with its auxiliaries, was adopted, and the result came to be uniformly favourable. Yet it is no less true that effusions may take place under circumstances directly the reverse of the preceding, or in a weak and highly cachectic condition. Moderate purging and the more stimulating diuretics are here the remedies in which confidence is usually placed. But I have found an infusion of digitalis singularly efficacious, and in many instances so much so as to supersede all other measures.

To restore strength and soundness of constitution, the martial preparations, exercise and a nutritious diet sometimes become necessary, and particularly in exsanguineous or leucophlegmatic states. But where the treatment of the disease has been careful

and judicious, such sequelæ are of rare occurrence, and may, perhaps, be entirely obviated.

As a preventive of scarlatina, the use of belladonna has, of late, attracted some attention. The facts, indeed, bearing on this point, are exceedingly curious, and, coming from respectable sources, ought not to be contemptuously or heedlessly passed over or rejected. Berendt, a physician of Vienna, declares, that by the use of the article, only fourteen out of one hundred and ninety-five children exposed to the contagion, took the disease, and these had it very mildly. We are further told by Professor Herholdt, of Copenhagen, that he found it to preserve several hundred children, during the prevalence of the disease as an epidemic in that city,—and, on a subsequent occasion, when it appeared even more violent, out of nearly an hundred families, all escaped except one, and of this he is doubtful whether they took the medicine. The testimony of Koreft, of Berlin, is scarcely less decisive,—that of Godelle, who avers that *he has never seen it to fail*, still more so, and a variety of attestations from other medical men of the continent of Europe, might be adduced. Ten or fifteen drops to children, according to the age, morning and night, of the watery solution of the extract of belladonna, in the proportion of two or three grains to an ounce of water, is the common mode of exhibition.

To what extent these statements are to be credited, I cannot say from any experience of my own. Distinct from the authority by which they are sustained, when we advert to the powerful impression of the belladonna, we may, on the principle of the incompatibility of two actions simultaneously existing, get an explanation of its modus operandi, and be not altogether incredulous. That preoccupying the stomach by food, cordial drinks, and even by certain medicines, as opium, or bark particularly, has proved prophylactic as to intermittent and some other diseases, is abundantly demonstrated. Yet, by the assurance of Hahnemann, the author of the homeopathic doctrines, which, originating in fraud and imposture, and continued by the most atrocious wickedness, that he was equally successful in the infinitesimal dose of a few drops, daily, of a solution, each drop of which contained no more than the twenty millionth part of a grain of the extract, distrust and even ridicule are cast over the whole affair, and our faith must be withdrawn or suspended till fresh and better evidence is afforded.

HÆMORRHAGIA,

OR

HÆMORRHAGE.

CONFORMABLY to its etymology, the term hæmorrhage embraces every effusion of blood, however induced. Five modes have been assigned in which it may take place, by rhesis or rupture of a vessel, by diaresis or division of it, by diabrosis or erosion of its coats, by diapedesis or transudation through them, and by anastomosis or dilatation of the mouths of the exhalents, so as to allow the blood to escape.

Founded, in part, on the supposed modes of its production, an arrangement was early made of hæmorrhage into traumatic, as occasioned by wounded vessels, and into spontaneous, when occurring without such vascular injuries. But more accurately expressive of the two distinctions, are the terms physical and vital, lately introduced, these indeed, denoting with sufficient precision, the nature of the lesions on which the sanguineous emissions depend.

Custom having hitherto resigned the physical hæmorrhages to the province of surgery, I shall, in obedience to it, do the same,—limiting the ensuing inquiry, therefore, to the other description of the affection. Corresponding more exactly, in my opinion, with a just pathology of vital hæmorrhages than any previous classification of them, it is my intention to distribute the subject under the titles of *active*, *less active*, and *passive*, thereby indicating the several gradations of the hæmorrhagic states. The symptoms, of course, vary as connected with one or the other of these conditions, and also by the part whence the effusion may

proceed. My aim, at present, is limited to a very rapid survey of the prominent features only.

In the first or active hæmorrhage, the effusion takes place with little or no premonition, though, perhaps, as frequently it is preceded by a full and somewhat struggling pulse, heat and redness of surface, with a sense of congestion in the part whence the blood is to be eliminated. On other occasions it presents more of the intermittent character, being ushered in by a chill, followed by fever, ceasing with the subsidence of the excitement and reverting on a recurrence of it. The law of periodicity may be very strictly observed in regard to the order of the paroxysms. Cases are recorded of hæmorrhage, in all its locations, returning daily, every other day, and at more distant intervals. Generally, however, the febrile condition is steady, or, at least, there are continued manifestations of an increased force of the circulation, and undue local determinations.

The effects of hæmorrhage depend mainly on the quantity of effusion, the rapidity with which it takes place, the part whence it proceeds, and the capacity to bear the debilitating process. No one doubts the influence of the two first causes,—and I think that of the others is scarcely less apparent. Thus, a few ounces of blood from the nostrils or the rectum will sometimes induce syncope or a disposition to it, and by even moderate repetitions of such bleedings in either case, for any length of time, degradations inevitably follow. Coming, on the contrary, from the mucous tissue of the lungs or the uterus, though a much larger amount be lost, there are seldom such results immediate or remote, and certainly not to the same extent. Equally is it true that, while some persons will sustain an immense loss without any ostensible injury, others instantly sink under very slight effusions, or have entailed a lengthened suffering,—and this shall happen where no material difference between them is discernible in vigour or integrity of constitution. The same disparity, in this respect, may be observed in relation to the effect of venesection or topical bleeding, ascribable altogether, as in the former instance, to some idiosyncrasy not always intelligible. Many instances to this purport have I seen.

Generally, in active hæmorrhage, where the flow is moderate, and escapes through the external passages, great relief is afforded to the existing symptoms, and a renewal of the hæmorrhage

usually prevented. But when the loss of blood is disproportioned to the exigency, and of course still more, when exceedingly profuse or rapidly emitted, the action of the heart and vessels is so reduced as scarcely to be recognized,—the surface becomes cold, collapsed and pallid, the respiration quick and embarrassed, chills or rigors take place, followed by distraction of the senses, dimness of vision, ringing in the ears, with nervous tremors, some cerebral confusion, and ultimately syncope, or, perhaps, fatal convulsions. Yet after a while reaction commonly ensues, attended by a quick, hard, irritated pulse, alternate chills and flushes, or a more permanent and unequal distribution of temperature, and very often by repetitions of the hæmorrhage to a greater or less extent. Extreme perturbation, however, of body and mind, is sometimes now betrayed,—the countenance becomes florid or pale in rapid succession, the tongue furred, the skin hot and dry, the whole circulatory machinery acts abnormally,—and the pulse simulates by its impetus, its fulness and even its tenseness, the real synochal state.

Enduring, in this way, for any length of time, the consequences of the hæmorrhage are exceedingly serious, amounting nearly to an universal disorder of the functions of the animal economy. The aspect is that of confirmed and inveterate dyscracy, pale, sallow or livid in patches—sometimes bloated, particularly the face—the circulation being accelerated and feeble, though apt still to be tumultuous on any mental or corporeal agitation. Cerebral excitement, indicated by intolerance of light or sounds, or by slight delirium, is, indeed, very common.

Not arrested, the case rapidly advances with an aggravation of the foregoing symptoms. To increased exhaustion, there are added greater embarrassments of breathing, sluggishness of body, obtuseness of mind, drowsiness, more violent throbings of the arteries, and palpitations of the heart on any exertion or emotion, with considerable irritation in the mucous lining of the alimentary and pulmonary passages,—deficient urination,—and where death does not promptly take place, dropsy of the cellular tissue, or of the cavities, or of both, results, which more slowly leads to the same catastrophe.

Much of this account is applicable to the *less active* hæmorrhages. They differ, however, materially in their early symptoms. Connected, from the beginning, with a reduced, attenuated

and frequently depraved state of the system, and rarely preceded or accompanied by any of the signs of the *molimen hæmorrhagicum*, the train of secondary phenomena I have noticed are almost constantly evinced by any undue loss of blood, and hurry on with more rapid speed to the final termination which has been described.

Nothing scarcely need now be said of *passive* hæmorrhages, since the circumstances in which they occur, and the mode of production to be immediately detailed, are calculated to shed sufficient light on them at present, without any formal recital of their history.

They are mostly the effect of the lowest state of vitality, whether induced by acute or chronic distempers,—and occurring in such general pravities of system, are usually very pervading, the effusions coming from several parts, or indeed, as I have seen, from nearly the whole body simultaneously. Lucan says of them:

“Sanguis erant lacrymæ: quæcumque foramina novit
Humor, ab his largus manat crux: ora redundant,
Et patulæ nares: sudor rubet: omnia plenis
Membra fluunt venis totum est pro vulnere corpus.”

Next, I am to advert to a species or variety of hæmorrhage which seems peculiar in its character. My allusion is to those cases where the effusion recurs at stated intervals, sometimes with the exactness of well-regulated menstruation, though perhaps rather incident to males than females—preceded nor attended by any manifestation of disease, except the sense of local fulness—nearly always issuing from the same part, and a similar quantity of blood escaping each time, the prevention or checking of which is followed by detriment to health. Examples I shall hereafter adduce of such effusions taking place in many of the organs and structures of the body.

This *habitual* hæmorrhage, which may be continued through a long life, is not to be confounded with the vicarious, succedaneous or supplemental discharges sometimes of the rectum, nares, bronchi, &c., though oftener of the uterus, corresponding as they do in their general aspect. Gall, the phrenologist, who had a very large development of nonsense, among other silly notions which he advanced, vehemently contended for the existence of menstruation in males, resting the hypothesis solely on the ana-

logy between these two hæmorrhages. As well might he have insisted on men bearing children, because an imperfect fœtus had occasionally been found in certain portions of their bodies! Differing in diverse respects, it is mainly in the *habitual*, being very rare, and the *vicarious* frequent,—the former happening mostly in males, and the latter in females,—the one arising without any obvious cause, and the other consequent on the suppression of some pre-existing discharge, and that, though the habitual may be displayed in various organs or tissues, it is subsequently repeated with great uniformity in the one it originally occupied,—and reversely with regard to the vicarious, it showing so little steadiness of the kind in many instances, as during an attack to be fluctuating or metastatic, in rapid succession altering its position. Both these hæmorrhages, however, so far agree, that with few, perhaps no exceptions, they are of the active form, attended by repletion of blood, general or local, and are usually of salutary tendencies.

To exhibit a complete view of hæmorrhage, it were required to notice also the sanguineous extravasations to which occluded cavities are liable. But these have been separated as distinct diseases, and agreeably to established usage, they will be considered by me under the heads of apoplexy, &c.

Tracing the etiology of hæmorrhage, it will be perceived that there is the greatest liability to it about the age of puberty, when a redundancy of blood exists. As on the completion of an edifice, there is left a surplus of materials to be disposed of, so, on the cessation of the growth of the body, an excess of blood remains, sometimes removed in this way. But the tendency of hæmorrhage to its several localities, seems to be considerably influenced by the stages of life. Childhood and adolescence are prone to effusions from the nose,—for some time afterwards they proceed from the lungs,—in middle age, the alimentary canal and the brain afford the outlet—and, from the kidneys or bladder, they are most frequently met with at a still later period. But since, in the progress to maturity, the different parts of the body may be unequally developed, and as, subsequently, changes take place from disease or otherwise, having a similar effect, many exceptions will be found to this general rule. Nevertheless, peculiar conformations of structure no doubt predispose to particular hæmorrhages. Thus, among other instances, the short neck and

large head, invite to epistaxis or apoplexy--while the narrow, ill-shaped chest does equally so to hæmoptysis. Certain persons, too, are singularly liable to the disease, and from different portions of the body, in whom nothing is discernible in the exterior configuration to afford an explanation. Nor is it uncommon for whole families to be thus distinguished, and who in some instances seem to derive the peculiarity by inheritance. An unusual want of tone in the coats of the extreme vessels, or some anomaly in their arrangement,—by which their capacity is less to resist the occasional momentum in the movements of the blood,—has here been suspected. Cases of this sort are more frequent in scrofulous habits, where laxity in the structure of the vessels usually exists. But without any proof of such diathesis, it occurs occasionally—the hæmorrhage spontaneously bursting forth, or following the slightest wound, even an incision of the gum or a cut of the finger, and persisting so obstinately as to prove very difficult, or not at all to be restrained. Numerous instances of the kind are recorded—some of which are collected in Andral's work on Pathological Anatomy, and in an Essay on the subject, by Dr. Reynel Coates, in the North American Medical Journal.

As conducive to an increased proclivity to hæmorrhagic occurrences, much is ascribed to an habitual fulness of body, and particularly where the circulation is redundant with rich blood. That such a state tends to this effect cannot be denied, though the reverse is scarcely less true, or that it is frequently incident to attenuated habits, and where the blood is scanty and impoverished. Each condition leads to it, provided the balance in the circulation is prone to subversion, it being under these circumstances, the consequence of unequal concentrations of blood, rather than of its quantity or quality.

But other pathological states, in which the blood undergoes still greater changes—its consistency being so completely broken down as to be rendered a thinner fluid, easily escaping through the exhalents—dispose, also, to this event, and independently of any previous local accumulations. It is met with in scurvy, low malignant fevers, and various other analogous diseases, or as the effect of accidental inanition, or a penurious diet, depressing passions, the want of fresh air or external exercise, or of solar heat and light, or whatever else affects the nerves more immediately concerned in the secretory and nutritive pro-

cesses. Certain articles taken into the system seem especially to exercise a sort of specific operation in causing such a state of the blood. The experiments of Starke show that living long on sugar produces it, and we have reason to suppose that the exorbitant or continued use of the neutral salts, particularly common salt, as well as the alkalies, have the same tendency. As regards common salt, we see a striking proof of it in the production of scurvy with blood of this kind. The contrary, I know, has lately been maintained by Stephens, whose authority is to be respected. It is, also, very speedily occasioned by some poisons taken internally, and by the bites of numerous venomous serpents, and even by the stings of several insects, and most promptly by a stroke of lightning. The foregoing are examples of what I mean by *passive* hæmorrhage.

To the causes mentioned, others are to be added of a nature accidental, accessory or exciting, as whatever, indeed, is calculated to invigorate or quicken the circulation, or the reverse, to render it slow or sluggish, so as to direct to, or concentrate blood on any one organ or part of the body. The most prominent of these are:—

1st. Extreme heat, the operation of which is witnessed on the first accession of the warmth of spring, or during the intense heat of summer, and most conspicuously in persons who carry on their occupations in close stove-rooms, or work immediately over fires. It acts here, in the first place, merely as a stimulant accelerating the circulation, and, secondly, by relaxing the integuments which support the extreme vessels.

2d. Cold to the surface. The mode of its action is different under opposite circumstances. Being suddenly applied, as in the shower or plunging bath, a vast shock is given to the system, and a corresponding impetus to the circulation with a centripetal direction. But, where the application is gradual, there is an accumulation of susceptibility and a reaction, with febrile excitement, on an exposure to heat or any other stimulant.

3d. Diminution in the weight or density of the atmosphere. The effect of it is illustrated chiefly in the ascent of elevated positions, and which, I am aware, has been imputed merely to inordinate exertion. We are, however, told by De Saussure, who went to the top of Mont Blanc, the highest point of the Alps, that, in a state of rest, among other effects which he expe-

rienced from the rare atmosphere, the blood gushed from his nose, ears and gums;—and which is fully corroborated by Baron Humboldt, by whom the mountains of South America were ascended to their utmost pinnacle. It is, perhaps, wholly ascribable to deficient atmospherical pressure.

4th. Exertions inordinately violent and other excitants, conduce to the same end—as running, leaping, fighting, lifting heavy weights,—or eating or drinking in excess, or vomiting, coughing or sneezing,—or bent positions of the head or body,—or ligatures retarding the return of the blood,—or the suppression of discharges from issues, or setons, or ulcers,—the repercussion of cutaneous eruptions, or vehement gusts of passion, or emotions of any sort, or ardent venereal desires kept from indulgence, &c. Caused, however, in some of these modes, the case might not, perhaps, come within the definition of spontaneous or vital hæmorrhage, which, as I have stated, must be independent of external violence.

5th. Hæmorrhage may be owing to various morbid conditions of parts from which it immediately proceeds, or as consequent on similar states of other and remoter organs. Many of the lesions of the lungs operate to this effect, those of the heart still more, and of the liver, spleen, kidneys and uterus, in nearly an equal degree. It is plain that the circulation in the main vessels of an organ being impeded, the capillaries of it must become distended with blood, promotive of effusions.

6th. Gastric and intestinal irritation, especially from the habit of constipation, exerts a similar influence by inviting an excess of blood to the parts, and that of the mucous surface of the lungs from inhalations of acrid particles, or by other irritants, among which are an elongation of the uvula, enlargement of the tonsils and ulceration of the fauces, by an extension of irritation to the pulmonary tissue.

7th. As before remarked, hæmorrhage is prone to a shifting of position, and thus gushes out of another part—occasioned by the sudden suppression of sanguineous discharges from artificial interference, or by the course of blood being elsewhere solicited by a higher degree of irritation, creating a predisposition to such an afflux, as, among other instances, on checking the nasal, uterine, and particularly the hæmorrhoidal effusion, hæmoptysis, hæmatemesis or apoplexy, has speedily ensued. This is the

hæmorrhage from metastasis, which, on some occasions, is very profuse.

Mostly hæmorrhage is referable to some positive lesion. But this is not so in all instances, especially in relation to those habitual discharges to which I have just alluded, so regular in their repetitions and salutary in their tendencies. These seem to be owing to some original, inherent, constitutional idiosyncrasy, by which a particular organ is made, as it were, an emunctory, to drain off a pernicious excess of blood.

No disease can be mistaken for hæmorrhage where the blood is voided outwards, which is now only under consideration, and hence, it were superfluous to say a word on the signs of discrimination. It may, however, be useful, in a practical view, to indicate the means by which the different pathological states of the affection itself are to be recognized. Even here a very few remarks will suffice. Let it be recollected, as a general guide, that, in the most active form, there is the evidence of a strong, full circulation, with redundant, florid blood, which abounds in crassamentum, and readily coagulates: in the less active, the reverse, in some degree, of these appearances; it being thinner, darker-coloured and seldom firmly clotted—while, in the passive, to extreme debility is united either ensanguineousness, or the blood exhibits a vast excess of serum, or otherwise is more fluid and black.

Not a little may be learned in speculating on the probable issue of the case from what has been previously said. The circumstances heretofore pointed out as influencing the event should be carefully regarded. But, above all, we must attend to the pathological condition by which the effusion is excited and maintained. Excepting the emissions be into occluded cavities, an active hæmorrhage may mostly be deemed critical and salutary, and can only operate otherwise by excess at the moment, or by too long prevalence. There is ordinarily integrity of constitution, and relief is afforded to an oppressive degree of repletion. For the most part, different are the effects of the weaker hæmorrhages. No further expenditure of blood is here scarcely ever admissible.

An absolutely passive hæmorrhage is always to be dreaded, it denoting a condition of things from which recoveries seldom take place. Chronic hæmorrhages, as arising usually from some

permanent irritation, are also of evil import—not so much, however, on account of their copiousness, as the organic lesion of which they are the effect.

The anatomical characters of hæmorrhage, as revealed on dissection, are considerably modified by the causes and the seats of the affection, the gradations of its activity, or its passive nature, and by the duration of the attack. These considerations, with the summary I am now to offer, will suggest a general notion of their appearances, and, on coming to the description of the special hæmorrhages, I shall describe them more precisely.

An acute hæmorrhage, when profuse, sometimes leaves the tissue, from which it has emanated, in a natural condition, the pre-existing congestion or inflammation having been removed by the draining out of the blood, or, owing to the same cause, it may be preternaturally pallid and flaccid. Generally, however, the pathological conditions mentioned are met with in various degrees—sometimes the phlogosis is widely diffused, sometimes only stellated or streaked—while, on other occasions, the vessels are merely turgid, or ecchymosed blotches, of different sizes, are discoverable. It has been said that similar lesions are pretty constantly found in the brain, though not the seat of the effusion, and which might be presumed from the convulsions and other cerebral affections caused by excessive losses of blood. Experiments, in which animals were bled to death, have indeed shown that the tissues of that organ, as well as those of other structures, and particularly the mucous surfaces, are almost invariably engorged, and hence a doubt may arise how far such a state be the cause or consequence of the hæmorrhagic effusion. The appearances in the parenchymatous organs are simple engorgement or infiltration, or larger extravasations of blood, and seldom any phlogosis.

Chronic hæmorrhages more uniformly present the phenomena of inflammation or its effects, in the thickening or thinning, hardening or softening, or other changes of texture, with diverse other structural derangements, considerably influenced by the character of the organ affected. Not much is known of the lesions of the solids in passive hæmorrhage—the most notable alterations in these cases being in the circulating fluids, as previously indicated. But they may be conjectured from the nature of the diseases on which they are dependent. Designedly I have omitted

any account of those organic lesions of the heart, the lungs and abdominal viscera, which so often exist. These are to be deemed the causes, and not the effects, of the hæmorrhage, and hence it were inappropriate to notice them in this place.

In entering on the examination of the pathology of hæmorrhage, it is proper to state that, in most instances, though not always, it can be correctly viewed only as an effect of a pre-existing abnormal condition, which, in reality, constitutes the disease. Diversified as the causes of it are, they unite so far as to excite an irritation in a part, invitational of an afflux of blood—and the congestion thus created is usually the immediate precursor to the effusion, and, perhaps, may be deemed its proximate cause. But effusion not happening, phlogosis is apt to be set up, and then a hæmorrhage may ensue as one of the incidents to the inflammatory process. This, however, comparatively, is a rare occurrence, and, whenever it does happen, the discharge is small, real and copious hæmorrhage being the result of engorgement. Much to the contrary, I am aware, has been said, without, however, any attention to the facts of the case.

Exactly in the same mode do the less active hæmorrhages take place. Local congestion of considerable intensity, and sometimes inflammation, may prevail, with general debility. Considering those periodical effusions of blood which, from long habit, seem to become of the nature of a natural discharge, as a hæmorrhage, they are to be embraced in the same view, since, evidently, irritation and fulness are antecedents to the effusion, very analogous to what happens in menstruation.

Of the active forms of this affection, in its several gradations, such is the rationale. Existing, however, under the opposite circumstances, of extreme depression of the vital forces, the emission of blood is usually without either of the pre-existing conditions mentioned, flowing out, as it were, by a mere leakage of the exhalents, or congestion ever happening, it is *hypostatic*, proceeding merely from gravitation of blood into the more depending parts of the body, neither of which can hardly be considered as operations of life.

Genuine or vital hæmorrhage, it is now admitted, takes place by anastomosis. No recent writer of any authority adheres to the ancient notion of the rupture of vessels, though it is true that there are some who still credit the conjecture of the transudation

of the blood. But this latter hypothesis receives, at present, no general countenance, and the doctrine of exhalation may be deemed amply entertained. This view, originally suggested by Morgagni, was subsequently adopted by the celebrated Bichat, whose arguments in support of it I shall cite from his work.*

He observes,—1st. “That in no instance, where he has opened the bodies of those who have died of vital hæmorrhage, has he discovered any traces of rupture of vessels, though he employed the nicest care in washing and macerating the surfaces, and examining them with a microscope.

2d. “That in squeezing the mucous surface of the uterus, in women who have died in hæmorrhage, a number of small drops of blood may be pressed out, which manifestly correspond to the extremities of the exhalent vessels.

3d. “That hæmorrhages sometimes take place from surfaces, as the skin, where the blood indubitably comes from the exhalents, and which renders it probable that the same is the case with the mucous membranes.

4th. “That if rupture always preceded hæmorrhage, the internal surface of the womb would be a mere collection of cicatrices, as we must suppose one or more ruptures to occur at every monthly period.

5th. “That if in active hæmorrhages, where there is evidently a previous congestion of blood, we should admit the possibility of a rupture, how can we suppose it to take place in passive hæmorrhage, where the powers of the vessels, almost destroyed by disease, permit the blood to pass freely from their orifices.

6th. “That it is difficult to reconcile many of the phenomena of hæmorrhage, such as the extreme rapidity with which it is sometimes produced,—its appearance in another part, when it has disappeared from that in which it previously existed, and its subjection to the influence of sympathy,—with the supposition that it is produced by rupture.

7th. “The irregularity of the appearance of the blood in some hæmorrhages,—its copious flow in one instance, and its complete cessation the next, and so alternately, many times in the course of a short period,—are difficult to be accounted for on the prin-

* *Anatomie Generale.*

ple of rupture, for we must suppose the wound to be opened and closed again at every alternation of the discharge.

8th. "Comparing hæmorrhages allowedly proceeding from rupture, with others, they do not resemble them either in their phenomena or duration—they are independent of all influence from sympathy and the passions, which have considerable effect on the common kinds."

This view which is here so ably argued, has been since completely established by the inquiries of Laennec, Chomel, Andral and many other distinguished pathologists.

The usual objection raised against it, of its being scarcely conceivable that so copious a discharge as is sometimes witnessed, should proceed merely from exhalation, I do not think has much force. Even from a very limited space the effusion may be very profuse. As one, among many other examples of it, epistaxis suggests itself where enormous quantities of blood, on some occasions, proceed from a very small portion of the lining of a nostril. The same is predicable of most of the tissues, and is strikingly illustrated in many instances by the cutaneous effusions where, limited to a mere point, the loss of blood has been so enormous as actually to have caused death. Further,—and with this additional illustration I must be content,—not many years ago, I attended with the late Professor Dewees, a young man, otherwise in good health, who, for three successive days, lost about three pints of blood daily from his gums. Both these and his teeth were remarkably sound, to all appearance. By wiping the gums clean, the blood was seen in a moment oozing out from numerous pores.

What takes place in the exhalents, to which this effect is to be referred, we do not know. To say, in the language of Bichat, that it is owing "to a change in the activity of the capillaries, as well as in the specific sensibility of the exhalents," were to repeat a phrase meaning no more than that they are in a morbid condition, preventive of the performance of their natural functions, which is a mere truism. It is probable the phenomenon is referable to some irregular operation of the nervous system, by which there is a deficiency, inequality or other disorder of innervation. Many of the circumstances of hæmorrhage sustain this view, which might, indeed, be very plausibly vindicated, had I time to dwell on such speculations. Destitute, however, as we

may be, of any precise information on this point, it is still, perhaps, not more obscure than many other parts of pathology. The extreme vessels, in a healthy state, exercise the function of secreting and throwing out a mucous, serous or some more attenuated fluid, according to their respective offices. Becoming diseased, this capacity is sometimes utterly lost, and blood which enters them for the elaboration of these fluids, passes through unaltered. As an illustration of this position, the case of menorrhagia is exceedingly striking. The uterine capillaries in health, by a secretory action, convert the blood into a peculiar fluid, denominated menses. In certain conditions, however, they are deprived of this faculty, and pure blood escapes, constituting a real hæmorrhage. Lientery, also, affords an analogy which, though remote, is still pertinent. Food received into the stomach, in this affection, owing to a singularly irritable condition of the alimentary canal, is hurried down, and evacuated without any alteration from the digestive operations.

The hypothesis under view is further rendered probable by the circumstance of the blood, in some cases being partially changed, a sufficiency of it only remaining to colour the mucous or other secreted fluid. We meet with such appearances in hæmoptysis, and still more frequently in dysentery. The evacuations in this disease, which exhibit every variation from pure mucus to nearly pure blood, surely can only be accounted for on such a supposition. More explicitly stated, these various aspects of the stools are owing either to gradations of diseased action in the vessels of the same portion of the intestine, or while those of one part may be secreting mucus, another is extravasating blood, which, mixed together, present the complicated character described.

In a word, the doctrine I have endeavoured to expound supposes that vital hæmorrhage is an effusion from the exhalents of some of the elementary tissues, and not at all occasioned by rupture of the large vessels entering into the composition of these or the substance of the organs. Even in cases where blood is met with in the latter situations, as in cerebral and pulmonary apoplexy, it is referable mostly to the same sort of exhalation.

Of all the hæmorrhages, those of the brain are most apt, it is said, to be induced by rupture, which is attempted to be

explained as well by the peculiarity in the conformation and arrangement of its vessels, as their greater liability to disease. Granting this, still such events are comparatively rare.

To insist on the doctrine of exhalation, I have been led the more strenuously,—for though now demonstrated to be true, from long and general usage, a phraseology continues to be employed by the profession and others that warrants a different conclusion. As much almost as formerly do we hear of the rupture, bursting or breaking of blood-vessels, in connection with the occurrence of hæmorrhage, which is inaccurate in itself, conveying a mistaken pathological notion, and, among other evil consequences, is well calculated to create unnecessary alarm.

Except, perhaps, the purely fibrous, every tissue is subject to sanguineous effusion.

But in the mucous, in all its distributions, though especially in the lining of the alimentary and pulmonary passages, it chiefly takes place, and which may be accounted for as well from the greater vascularity of this texture as by its freer exposure to morbid agencies. Each one of the more common hæmorrhages, epistaxis, hæmoptysis, hæmatemesis, hæmorrhoids, the vesical and the uterine, in the unimpregnated state of the latter organ, belongs to this tissue, and is thus induced. Those of the cellular membrane are usually exhibited in the substance of organs into which it enters as an interstitial tissue, though sometimes, in the subcutaneous and other different portions of it, while the dermoid mostly effuses in the shape of petechiae or vibices, or what is called hæmorrhæa purpurea, from its greater extent, amounting occasionally to real hæmorrhage. Blood may, however, ooze through the pores of the skin in place of the serous fluid in the perspiratory process.

That hæmorrhage is also incident to the serous membranes, the arachnoid, the pleura, the pericardium and peritoneum, we are assured, by extravasated blood having been found in their respective cavities.

Formerly, hæmorrhage was divided into active and passive,—and on this pathological distinction, a controversy is now maintained, in which the latter state is utterly denied by one party. This is really a dispute of definition, different meanings being attached to the terms employed. The term passive, I am inclined to believe, was adopted conventionally, to signify not an absolute

want of action, as it strictly imports, but a weaker state, in contra-distinction to that activity which belongs to febrile hæmorrhage. Conceding that topical irritation and congestion may exist with general weakness, and this is all which, perhaps, will be demanded, I must still insist that extravasations of blood do take place, though scarcely to be considered as genuine hæmorrhage, in a state in which there is neither congestion nor action in the vessels concerned. It is usually the result, as formerly intimated, of the feebleness of vital power, affecting both the vessels and the blood, the one being very relaxed, and the other thin or wanting in consistency,—proofs of which are exhibited in various diseases of exhaustion. As after death, where we often meet with large livid patches on the surface, from sanguineous exudations, as well as collections of blood within the cavities, which, as regards the former, we have ocular demonstration that they did not pre-exist, so does it happen in the last expiring efforts of life, under the circumstances stated.

The language of Andral, who is among the very highest authorities, is very conclusive on this point. “The existence,” he says, “of vascular congestion is not essential to the production of every species of hæmorrhage. It is sufficient that the qualities of the blood should be so modified, that its molecules lose their natural form of cohesion, in which case the blood escapes from its vessels with the greatest facility, and hæmorrhages occur at the same moment in different parts of the body, totally unconnected with the presence of any irritative or inflammatory action. Examples of such hæmorrhages are supplied in scurvy, in typhus, and other diseases in which there is a certainty that the blood has undergone such changes. How the vessels are modified, so as to permit their contents to escape, is a mystery which we cannot divine. But so much is ascertained, that the blood so far from accumulating in them, constituting congestion, is permitted to flow out as fast as it arrives.”

As illustrating this principle, he adduces the analogies of the profuse colliquative perspirations, in states of extreme weakness, and also the cold sweats of death, to which he might have added some instances of hydropic effusions.

To close, however, this controversy, let these different theoretic views be subjected to practice, the fairest, and, indeed, the only test of speculative truth. Do we, in any such case of feeble or

passive hæmorrhage, resort to evacuant or depletory means? But, on the contrary, are not all our remedies of a tonic or even stimulating character to restore tone and impart vigour to the relaxed vessels and general system—and subsequently to such means as are supposed to change and improve the character of the blood itself? To an ordeal of this kind do I always bring a theory. Before adopting it, I must see how it works in a sick room

An opinion at one time was very generally entertained, that in early life, hæmorrhage proceeds from the arteries, and afterwards from the veins, plethora then being transferred to the latter portion of the circulatory system. But some dissented from it, and maintained that at every stage of existence, it is mostly venous, when coming from the hepatic, splenetic, gastro-enteric or hæmorrhoidal vessels—while that from the nasal, pulmonary and uterine, as uniformly to issue from the arteries. Excepting malœna, and even this can scarcely be considered as an exception, since the portal circulation is not strictly venous, or admitting it to be such, it is still more probable that the hæmorrhage comes from the vessels of the alimentary tube, it is quite certain, I think, that all genuine hæmorrhages are of an arterial nature. Distinct from other evidence to be hereafter cited when treating of the separate hæmorrhages, such a conclusion is to me irresistible, from the contemplation only of the mode in which the effusion takes place, it being through the capillaries performing the secretory and nutritive offices, which are a part of the arterial and not of the venous system.

Coming to the practical portion of my subject, I am met, at the very threshold, by the question, whether it is expedient, in any case of hæmorrhage, to interfere, or whether at all times it should not be left to the uncontrolled efforts of nature?

It was a doctrine, originally advanced by Stahl, in which he was followed by his disciples, and some later authorities, that these discharges are designed to remove a dangerous repletion of system, which being sufficiently effected, they spontaneously cease. That such a view, with certain limitations, is correct, cannot be denied. Most hæmorrhages of an active character are undoubtedly salutary. It is also true, that the sudden checking of the nasal and hæmorrhoidal discharges is dangerous in a disposition to cerebral affection, as well as in fever, and many other acute and chronic diseases. Nor can it be disputed that the

flow of blood is often duly suppressed by the natural resources. But admitting these postulates, it will still appear that we cannot uniformly confide to nature the charge of such cases. Efficient and wise, sometimes, in her endeavours, she is oftener the reverse, and we are constrained, to prevent evil, to take the management out of her hands. As an example, she frequently neglects, or is not able, to give to these discharges a proper direction, and instead of blood issuing from the nasal or rectal vessels, it is poured into the cranial or some other occluded cavity, from which it cannot escape or be removed. Not less is her blindness or incompetency evinced in resorting, at all, to the expedient, in enfeebled, or in permitting an excessive expenditure of blood in other states of the system. The hæmorrhage, too, being copious, she cannot always, by syncope or by any other means, afford relief. These, then, are the leading circumstances demanding the interposition of art, and without which, indeed, in numerous instances, the event must be inevitably fatal.

The leading indication, in all inordinately profuse hæmorrhages, is to suppress the flow of blood, and when they are active and febrile, it is done.

1st. By reducing the force of vascular action by evacuations, and especially by bleeding, general and topical.

2d. By what are termed refrigerants, which may be external or internal, the one consisting of cold applications and the other of a set of medicines, so called, as nitrate of potash, &c.

3d. By the sedative articles, or such as are presumed to abate the energies of the moving powers of the circulation without any evacuation, as digitalis, Prussic acid, &c.

4th. By constringing the mouths of the vessels. Whether there be a medicine with such a property is to me exceedingly problematical, and, perhaps, does not exist. Yet it is supposed that we are in possession of many, as certain preparations of lead, of copper, of zinc, of alum, the mineral acids and kreasote, besides several from the vegetable kingdom, as tannin or those substances containing this principle. Directly applied to the vessels, some of these are styptics—though acting through the medium of the system, they probably have no such effect.

5th. Causing a revulsion in the circulating fluids, from the affected part to one less interesting to the animal economy, is another principle in the cure of hæmorrhages, which occasionally

succeeds where the means are judiciously selected and well timed. It is customary to recur to stimulating pediluvia, or sinapisms, or blisters to the extremities with this intention.

Excepting that evacuations, particularly by venesection, are to be more limited, or sometimes entirely excluded, I am not aware that there is any material difference in the means of meeting the same indication in the less active hæmorrhages. Emetics, however, are here undoubtedly useful.

To prevent the recurrence of the affection, by guarding against the exciting causes, and removing the pathological condition which disposes to its production, is the second indication. The latter may be found in some positive lesion of organs, requiring a distinct mode of treatment, accommodated to the nature of the case. But owing merely to the hæmorrhagic diathesis or tendency, the most effectual measure, perhaps, consists in such diet as is the least calculated to fill the vessels with blood or excite their movements. Care, at the same time, should be observed to anticipate a repetition of the hæmorrhage where it is menaced, by a renewal of the means of direct reduction.

In the weaker state of the affection, we must endeavour to invigorate the system and equalize the circulation, by the well-regulated use of tonics, particularly the martial preparations, and by a course of living co-operating to the same end, without, however, its having any heating or stimulating effect. Even in these cases, local irritations or congestions must be watched and timely removed by topical bleeding or vesication.

Much is to be expected from exercise as an auxiliary to diet, in the prevention of each state of hæmorrhage. Eminently has it the power of promoting the secretions and excretions, of renovating healthy action, and especially of re-establishing a just equilibrium in the circulation, thereby obviating those local accumulations which prove the proximate cause of the effusion. Every thing else failing, an alterative course of mercury, very cautiously conducted, has often succeeded in both forms of the disease, acting as well by the restoration of healthy secretory power, as removing visceral obstructions, constituting the remote sources of the affection.

In regard to the purely passive hæmorrhages, I have only to say, that as incidents to a very low and depraved condition of system, the treatment of them mainly consists in the correction of

the general vitiation from which they proceed. It may, however, be added, that merely to check a flow of blood, the phosphorus, the spirits of turpentine and kreosote, are thought to be singularly well adapted, though it is with the turpentine only that I have any experience.

As it usually appears, I think that too much importance is by many attached, in the management of vital hæmorrhage, to its suppression. Great alarm is created by it in the individual himself, as well as in his friends, and from which the medical attendant is not always entirely exempt. Every exertion is therefore made to check it, and this being accomplished, the anxiety which previously existed heedlessly subsides. Lulled into false security, the patient is too often permitted to revert to his former habits, without any permanent plan of treatment, till again awakened to a sense of danger by a repetition of an attack, and in this way he proceeds till the complaint is often irremediably fixed. Now, the hæmorrhage in itself is comparatively of little moment, for the most part, indeed, beneficial, and the real object of attention should be the correction of the condition giving rise to it, and which by neglect, in numerous instances, leads to the most disastrous consequences.

The general principles on which the treatment of hæmorrhage is to be conducted, having now been stated, it will be my next duty to illustrate and enforce them in an application to each individual case.

HÆMOPTYSIS, OR SPITTING OF BLOOD.

Taking this term in its literal acceptation, it is not at all significant of the pathological state which it is designed to express. As well might a catarrh be denominated an expectoration of mucus or any other matter as this affection a spitting up of blood. The act of sputation here is not always performed, the blood, indeed, being more frequently ejected in other and very different modes. Feeling the force of these objections, it has been proposed to entitle this hæmorrhage, *pneumorrhagia*. But this, as denoting merely a flow or discharge from the lungs, conveys scarcely a more precise or definite meaning. Far better are the terms hæmorrhagia pulmonum, hæmorrhœa pulmonalis and

hæm: bronchia, which, indeed, are very expressive of the nature and seat of the two forms of the effusion.

It is one of the most common of the modes of hæmorrhage, owing to the extent of the bronchial and vesicular surface, through which the blood circulates, the exposure to the causes of irritation, and the great liability of the lungs to congestion, as well from their own lesions as those of other organs, and especially of the heart.

Numerous divisions of hæmoptysis were formerly made, founded on the difference of causes or the modes of production. Discarding, however, these varieties as not belonging to vital hæmorrhage, recent pathologists have a distinction only in reference to the sources whence the blood issues, which are either the mucous or parenchymatous tissues of the lungs.

Like all other haemorrhages, the one of which we are now treating may be of an active character or the reverse,—and it is the former that will claim our immediate attention. This is usually ushered in by a sense of weight, sometimes of slight pain or burning in the chest, particularly under the sternum—a dry, hard cough—some shortness and difficulty of breathing—tickling in the larynx, trachea or bronchi—a full, active pulse and flushed face. But, on other occasions, the symptoms are far more aggravated. Coming on with little premonition, for the most part, though I have seen it preceded for some days by a good deal of pectoral irritation, the attack is characterized by the heaviest oppression, heaving of the chest—diaphragmatic or abdominal breathing—tumid, purple or livid countenance—distraction of mind—cold skin—dewy perspiration, particularly about the face and neck—feeble, or a full, tumultuous circulation—in the whole, presenting the aspect of the greatest distress and most imminent danger. Death sometimes takes place in the course of a few minutes, as I once witnessed myself,—and we have heard of an individual who as suddenly died from it in our theatre some short time ago. Thus characterized, it is probably of the nature of pulmonary apoplexy, as it is called.

Cases, too, sometimes occur, introduced more decidedly as fever. There is here a chill, with the pallid, constricted surface—coldness of the extremities—pains in the back and loins—disordered stomach—constipation and lassitude, followed, on reaction, by a full, hard, bounding pulse, and much heat and excitement.

This may be continued, or betray more or less of an intermittent type. The latter is not uncommon, of which I have seen some instances,—the most remarkable of which was that of a lady, in consultation with Dr. Mitchell, who, for eleven successive days, had hæmoptysis at nine o'clock precisely in the morning, always preceded by a slight chill. Many, with the same type, are recorded, recurring daily, every other day, or fourth day, or weekly, or monthly; thus conforming strictly to the law of periodicity observed by intermittent fever or other diseases.

As an example of the quotidian form, Reil mentions the case of a woman who had an attack of hæmoptysis every morning for two years,—and Thompson furnishes an instance of a tertian that regularly returned for more than a year,—Burserius, one of a quartan, that reverted with great exactness for a long time,—and Richter saw another where the hæmorrhage was repeated monthly for twenty five-years. Tulpus, indeed, relates cases of thirty and even forty years' continuance of this type. But here the catamenia were suppressed. Lusitanus, Shenk, Meyer and Mead, have reported similar facts, without, however, noticing the state of the menstrual function,—and Blanchard had a case reverting every three months, from an interruption of hæmorrhoids. An attack of hæmoptysis is very apt to be followed by others, though comparatively seldom with any periodical precision.

In the mode, as well as in the quantity of blood discharged, there is a difference. It sometimes comes up, attended by rattling in the windpipe, as if the tube were stuffed with phlegm, and by an irresistible propensity to cough,—which state of things may terminate at once with a discharge of bloody sputa only, or of a single mouthful of pure blood, or endure for a few days or for a longer period. There are instances, probably, of pulmonary apoplexy, in which it issues so copiously as to appear like a stream from the mouth. Two quarts, at least, I once saw come away in twenty or thirty minutes. Laennec says that he has known thirty pounds lost in about fifteen days,—and, in another ease, ten pounds in forty-eight hours. To which may be added the still more extraordinary instance given by Frank, of Vienna, of one hundred and ninety-two ounces in twenty-four hours, and that reported in one of the recent foreign journals of a larger amount in a still shorter period, followed by ultimate recovery. When so profuse, a sort of convulsive elevation of the diaphragm

takes place, as in puking, which has probably led to the common expression of vomiting of blood in this affection.

The causes, generally, of hæmorrhage may occasion hæmoptysis,—though there are some which more particularly conduce to this event.

1st. It is well ascertained that a predisposition to it is laid in a certain conformation or structure. Thus, a narrow thorax and prominent shoulders, a long neck, with a delicate make and sanguine temperament, seem particularly to invite such attacks. Connected, or otherwise, with such a configuration and temperament, this predisposition is often transmitted as an inheritance, descending directly, or through intermediate generations, to the whole, or greater part of a numerous family. On what it depends is not always apparent,—though a strumous or tubercular diathesis is mostly betrayed or may be suspected.

2d. The period of life is to be deemed a second cause of predisposition. Hæmoptysis rarely happens earlier than the twelfth, and is not common after the thirty-fifth year,—chiefly prevailing between the ages of fifteen and twenty-five, and especially at the season of puberty. Cullen supposes this to be owing to a want of due balance in the aortic and pulmonary circulations, from the continuance of the growth and expansion of the thorax, after the other portions of the body are completed, by which blood is unequally determined to the lungs.

It may be, in part, at least, on this account, that females, in whom the change is more conspicuous at the period of maturity, are more liable to such attacks than males, though it appears that at all times they have a much greater susceptibility to this hæmorrhage. The latter averment, I think, is sufficiently established. With very few exceptions, this was the impression from Galen till very modern times. Louis, whose authority is high on such points, has stated the proportion very much in conformity with my own observations, as three to two. Frank, and some others, however, declare that men are more liable to it than women, unless the catamenia be suppressed.

3d. That tubercles of the lungs predispose to hæmoptysis is indisputable. Nor, perhaps, is it less true that it is occasioned by other derangements of these organs or of the heart, liver or spleen, interrupting the freedom of circulation, as well, also, as by gastric and intestinal irritation reflected on the lungs.

4th. Certain classes of people are prone to hæmoptysis from their avocations or habits, among which are those who work in a bent position, as tailors and shoemakers or clerks, constantly confined to their tables, as well as such as are exposed in their operations to acrid or otherwise irritating inhalations.

The late Professor Rush tells us that those religious denominations who do not sing, and mostly worship silently, are very subject to it, from weakness of lungs, owing to the want, in this mode, of adequate exercise of these organs. My own experience, however, does not confirm this observation. Living in the "city of Friends," I have seen no peculiar liability, in this description of people, to be thus affected. Clergymen, on the contrary, are exceedingly subject to hæmoptysis, which has been ascribed, though I think erroneously, to the performance of the services of the pulpit. That it cannot be so, to the extent averred, is shown by the comparative immunity of lawyers, legislators and lecturers, each of whom harangue more constantly and loudly than preachers. I have, in treating of phthisis, advanced a conjectural explanation of this point. Be it as it may, the fact appears to me unquestionable, that this hæmorrhage is far more frequently to be witnessed in connection with an undue exertion of the lungs than the reverse, or the comparatively quiescent state, to which an allusion has been made.

As regards public singers, especially those of the opera, where the vocal powers are strained to the utmost, it is acknowledged that they are singularly liable to hæmoptysis, or if they escape it, they soon begin to suffer from some pulmonary affection, and either prematurely die or retire from their profession with a shattered voice and infirm health. Three or four years, I was informed by one of them, are, perhaps, the average of the full preservation of their powers.

5th. Nor are climate and particular localities without an influence in the production of this hæmorrhage, it being most prevalent in the medium latitudes, where the weather is cool, damp and austere, especially along the sea coast, and more in elevated or mountainous than in flat districts of country. Yet, in the absence of these and all other appreciable causes, an extraordinary proclivity to the affection occasionally prevails, which, in the present state of our knowledge, we must be content to refer,

as heretofore, to the vague hypothesis of a *hæmorrhagic diathesis* in such cases.

Congenital or acquired predispositions are excited into action by a variety of circumstances, or the latter may produce the same effect without any such tendencies. Not the least common of these, besides long or loud speaking or singing, already referred to, are sudden bursts of laughter—paroxysms of anger or other violent mental emotions—great exertions, especially raising heavy weights—irregular habits of living—the suppression of some customary discharge, as hæmorrhoids, epistaxis or the catamenia—the healing of old ulcers or the sudden cure or repulsion of cutaneous eruptions—the metastasis of gout or rheumatism—an exposure to a heated and impure or very rarified atmosphere—and, above all, the vicissitudes of weather, producing catarrhal or other pectoral affections. I have frequently seen it proceeding from the irritation of an elongated uvula, and sometimes, though rarely, from enlarged tonsils. Cases, too, have been reported, where an attack has followed the tying up of large arteries in surgical operations, so as to throw on the lungs an oppressive quantity of blood, and the loss of a limb, in the same way, more constantly induces it.

Nevertheless, though hæmoptysis is excited by the causes enumerated, it is still true, however extraordinary it may appear, that it occurs more frequently at night and in sleep, when, of course, there is the least corporeal or mental agitation. Of this, at least, I am persuaded that, of the cases I have seen, a majority took place under the circumstances mentioned.

Whether it is to be imputed to an increased susceptibility, acquired by the state of repose, as has been alleged, I shall not take upon myself positively to determine. It is altogether a curious fact, and has never, perhaps, been very satisfactorily elucidated or explained. But I cannot help suspecting that it is referable to the horizontal posture, and more particularly to the bending of the lower extremities in sleep, which, unquestionably, have great influence in determining blood to the lungs.

The mucous membrane, throughout its distribution in the lungs, their appendages as well as in the fauces, being liable to a sanguineous exhalation, it may be useful to distinguish the immediate position of it. Generally, when the hæmorrhage proceeds from the latter structures, there is merely hawking

without any pulmonary oppression, cough or vascular excitement—and, on examination of the throat, we may perceive that it proceeds from that or adjacent parts. Coming, too, either from the larynx or the fauces, &c., the amount of blood is small—though not always, as regards the latter structure especially. Examples are numerously recorded, and some such I have witnessed, of enormous and fatal losses of blood from the pharynx, the velum pendulum palatai, the inside of the cheeks, the gums and the tongue. But most of these cases were the result of acts of violence or of general depravity of system, or of the hæmorrhagic diathesis.

As to hæmoptysis proper, it is, perhaps, impossible always to discriminate accurately, by symptoms only, its two forms—that of the mucous membrane, and of the tissue of the lungs. Being, however, a *pulmonary* case, by which I mean an affection of the lung itself, it is usually designated by all those characteristics I have mentioned as belonging to the most violent attacks of the affection, coming on more suddenly, and with such intense oppression as even to threaten suffocation.

Nor can we uniformly rely on the external means of exploration—though, by carefully weighing the respective indications, much may be learned. In hæmorrhage of the mucous membrane, the chest, on percussion, is perfectly sonorous, and the stethoscope betrays a mucous rattle, proportionate to the quantity of blood retained in the bronchi. The former of these means in the pulmonary engorgement, when it is considerable, elicits a dull sound over the affected part—and the latter shows a want of the respiratory murmur in it, and the crepitous instead of the mucous rattle. Cases, however, are to be met with of great ambiguity, and where these resources fail, as when the two affections are united, or the engorgement is slight, or is seated in a portion of the lung beyond the reach of percussion. Taken in any view, the decision of the point is rather a matter of curiosity than practical utility. But very different is it in regard to the chronic lesions, tubercles, hepatization, &c., of which the effusion may be the effect, and, happily, as it is important, so is it comparatively easy. He who is skilled in the application of these means is enabled, at once, to pronounce with tolerable certainty on the nature of the affection, and to institute the practice best fitted for its removal.

It may be affirmed, as a general proposition, that the inactive

is far more intractable than the active hæmoptysis. There are, however, other considerations by which the case is to be estimated in this respect. The degree of danger is influenced by the position whence the hæmorrhage proceeds, and still more so by the pathological condition with which it may be associated. Coming from the larynx, it has been deemed the least alarming, and which may be generally so, though sometimes of the most serious import. Being precursory to consumption, as it is apt to be, probably the lungs are previously affected, the morbid action ascending upward, or, as may be, the reverse, it descending till the whole pulmonary system becomes engaged. Located in the mucous membrane, copious as the effusions may be, little is directly to be apprehended. Emanating, on the contrary, from the substance of the lung itself, hæmorrhage is almost uniformly and speedily fatal: such, however, is happily of rare occurrence.

Caused by tubercles, or any other serious lesion of the lungs or other organs, particularly the heart, an unfavourable result is sooner or later to be anticipated, more, however, from the antecedent lesion than the consequent effusion. Death, indeed, from hæmoptysis, as an immediate effect, is infinitely more rare than is usually supposed.

Heberden informs us that, in a practice of sixty years, he never lost a patient by it—and my own experience, which extends to two-thirds of this period, supplies me with very few instances—and none of these, I have reason to believe, were of the mucous membrane. Three of the four fatal cases which I have seen were, indeed, by a post-mortem examination, shown not to be so.

For the most part, hæmoptysis ought to carry with it little further terror than that excited by a suspicion, too often well-founded, that it is an outward sign or expression of disease of the lungs, and especially a tubercular state of these organs. Exempt from such lesions, they seem, in some instances, to suffer no more from hæmorrhage than other parts—in proof of which I have several very striking facts supplied by my own observations. Cases have come under my care where the hæmorrhage had been repeated again and again for a series of years, which ultimately did well—and there is no reason to doubt that a very distinguished person of this city, who died in his ninetieth year, was subject to very frequent recurrences of it for nearly two-thirds of his life. It was probably of a *habitual* nature, which is rather

salutary than pernicious. Yet, though the lungs may escape from any serious injury, it were prudent, in most cases, to effect a cure. The event itself shows an undue irritation in these organs—for, without it, the afflux of the blood leading to the effusion would not take place—and it is obvious that this is the very state of things which, by continuance, is so apt to lay the foundation of irreparable mischief.

Considering the diversity of condition on which hæmoptysis depends, the post-mortem appearances must, of course, be expected to vary. From the infrequency of death in that of the mucous membrane, the phenomena are not precisely determined. But we are not without some intelligence regarding them, and the following has been reported. In the most simple cases, caused merely by turgescency of the vessels of the tissue, little is observable, excepting the surface covered more or less with blood, which, being washed away, may present even a preternatural, pale or blanched appearance. But, sometimes, where the effusion has not been sufficient to empty the capillaries, the engorgement is continued. Connected with actual phlogosis, the ordinary evidence of such a state in the mucous lining is exhibited—and, being a chronic case, there are some changes of structure, thickened and either softer or more indurated or condensed than natural, with, occasionally, fibrinous concretions in the form of polypi.

Extravasations taking place in the parenchyma, which, as I said, is a very rare event, the appearances resemble very much those in cerebral apoplexy. Looking at the lung thus affected, we shall discover such portions of it circumscribed, from one to two or three inches, of a very deep dark red colour, and of a density equal to the completest hepatization. Cutting into these portions, they are found to consist of concrete blood—the surrounding tissue being crepitant and of the usual colour, or reddish, as if tinged with blood. More commonly than those masses of clotted blood embedded in cells, is a general infiltration of it into the alveolar and vesicular tissues, to the obstruction of respiration and the causation of the sudden extinguishment of life.

These are the phenomena in the simplest states of hæmoptysis. But, in the more complicated forms of it, there are discoverable, in different instances, besides tubercles in their several stages of development, all those organic lesions to which the lungs are

exposed. Extending, too, our researches further, we may find the heart, the liver, spleen or other of the viscera variously diseased, while the lungs shall sometimes escape—the irritation causing the effusion of blood being entirely of a derivative nature in such cases. These are the prominent phenomena exhibited in the solids. But the blood, also, may differ from that of health, and seldom, indeed, is entirely normal. I have already alluded to some of these changes as influencing the production of hæmorrhage. But, while I believe they are mostly the antecedents of the affection, I am equally persuaded of their secondary nature, the direct consequence of an altered condition of the heart and vessels from the hæmorrhagic action. Frequently have I seen blood which, at first, seemed perfectly natural, soon to become otherwise in its aspect, its crasis and other respects. These changes are best determined by an inspection of the fluid taken away by venesection. Early in an attack of active hæmorrhage, it is very much such as in the plethora of the sanguine temperament. Not long afterwards, and especially if fever be set up, it resembles that of the phlegmasiæ—henceforward becoming more fluid and dark, with evidently a vast diminution of its fibrine, and a corresponding increase of serum. The same changes in kind, though less in degree, are observable in the weaker hæmorrhages. Bleeding in the passive form of the disease not being practised, we are debarred the opportunity of thus tracing the changes in the blood. (Probably it undergoes none, or, at all events, very slight, judging from that effused; and such blood, never primary, is the invariable result of a persistent distemperature of body.) What is its character has been so recently told as not to require to be repeated.

Enough, perhaps, has been said in the preceding discussions, to convey my views of the pathology of hæmoptysis. Essentially is it the same as that of hæmorrhage generally, and as to its trivial peculiarities, these need scarcely detain us. The mucous membrane of the lungs is the seat of much the larger proportion of cases,—and it might be added, of the whole of genuine spontaneous hæmorrhage, with the exception of those of the cellular tissue of the pulmonary structure, which latter are so exceedingly rare, that I have seen only three, or, perhaps, four instances of it. Even those proceeding from tubercles, or other organic lesions of the lungs themselves, seem thus to be located—these

lesions serving so to irritate the mucous membrane as to cause the effusion.

In support of this doctrine, it were easy to extend the authorities on the subject, were it required. The language of Laennec, however, is so emphatic that I cannot forbear to cite it. "Hæmoptysis," says he, "is now very generally considered as depending on some functional derangement of the bronchial membrane, which causes it to exhale blood, in place of its ordinary mucous secretion,"—and speaking of the other form of it, he remarks, that "it is evidently an effusion of blood into the parenchyma of the lungs, or, in other words, into the air-cells. From its exact resemblance to the effusion which takes place in cerebral apoplexy, I have thought the name pulmonary apoplexy very applicable to it.* Commonly the effusion is into the air-cells, and may pass out through the bronchi, communicating with the cells, though, occasionally, there is a rupture of the substance of the lung, and the blood escapes into the cavity of the pleura, of which Corvisart gives an example."

It is not, however, to be understood that the doctrine I am sustaining, goes to the denial of hæmoptysis in other modes. That it may be induced by rupture from mechanical violence, or by an aneurism of the pulmonary arteries or varicose state of the veins, is certain, and, perhaps, scarcely less so occasionally, when it attends the tubercular excavation or ulceration of the lungs. But such cases seldom occur, and cannot be considered as spontaneous or vital hæmorrhage.

From the exhibition I have presented of the tendencies of hæmoptysis, it follows, that with the exception of the apoplectic species of it, which always requires the most prompt relief, it were of no great consequence to suppress it, unless the effusion be excessive or occur in a debilitated system. Generally, it will be found salutary, when moderate, producing very much the same effect as the artificial detraction of blood, and often super-

* In passing on, I will merely remark, that this term is not original with Laennec, as he seems to suppose. It was, I know, employed forty years ago, by the late Professor Rush, to express those heavy congestions to which the lungs are liable, in contra-distinction to pneumonia, an inflammation of the same texture, and in this sense, has ever since been retained among us. Laennec, however, I believe, was the first to apply it to pulmonary hæmorrhage, he having, too, the much higher credit of the original detection of this particular lesion.

seses the necessity for it. Determined, however, from any consideration to check the hæmorrhage, the indication in the active form of it is plainly to reduce vascular force or remove local congestion or phlogosis, for which purposes venesection appears peculiarly appropriate, and has the sanction of long and concurrent authority. Yet some have objected to it,—and among others the celebrated Heberden. Gravely is it put by him as a question to be solved by medical ingenuity, how the opening of a second vessel can check the flow from the one already ruptured? Not to advert particularly to the erroneous predication of this hæmorrhage being dependent on rhexis or rupture, I shall remark that this is a sophism unworthy of that candid physician. Whatever might be the difficulty of explanation, he well knew that the efficacy of bleeding had been amply demonstrated. Really, it seems to me that the case involves no dark enigma. Distinct from other modes in which it operates, such as the reduction of the amount of blood and the force of the circulation, by opening a vein in another part of the body, the flow of blood is invited to it, and thus, on the principle of revulsion, contributes largely to check the hæmorrhage. The solution of the problem, however, is immaterial. Bleeding is sufficiently admitted to be useful, and with this, we may at present be satisfied.

To meet the more violent attacks, it is indispensably necessary that the detraction of blood be large. Boerhaave says, “that hæmoptysis is cured by copious bleeding every third day, for four times, or till the inflammatory crust disappears from the blood.” The latter clause of the aphorism is sound, and conveys excellent practical advice,—though why this ternary recurrence to the remedy? More, however, to be condemned are the small and repeated bleedings advised by some practitioners. They harass and weaken, without at all contributing to the cure. Did this require any enforcement, it might be had in the history of numerous cases on record, where such practice was pursued ineffectually for a length of time, among which I have read an account of one in a late number of an English journal, where three hundred and fifty-seven ounces of blood were drawn away in seventeen days. Now, a large bleeding would, probably, at once have proved decisive, and all this time and exhaustion spared. It is my practice, when called to a bad case of hæmoptysis, in which I think it expedient promptly to effect relief, to

take away directly so much blood as to make a decided impression, or, in other words, to attain the end for which it is designed. Nothing short of this will be effectual in such hæmorrhages.

By some of the authorities, it is recommended to restrict the use of the lancet to cases only that are marked by fulness and activity of the circulation, with vigour of constitution. But, though here more urgently required, were the practice encumbered by such a limitation, the consequence would be eminently pernicious. It so happens, indeed, that a large proportion of the cases of hæmorrhage, and of active hæmorrhage, too, is attended not so much by redundancy of blood, as an unequal distribution of it, and this in individuals very far from being robust. Driven into the lungs in this undue quantity, which they are unable at once to return, and still more pushed on by the *vis à tergo*, which this congestion increases, the blood must force itself out, and continue to flow while such a condition of things endures. To remove this topical accumulation, as well as to restore an equilibrium in the circulation, venesection is the appropriate remedy. We see it most strikingly evinced in cerebral apoplexy and in many other analogous cases.

Nor, in another view, is the loss of blood less important. The lungs, in active hæmoptysis, are inflamed, or highly disposed to take on inflammation. Cases are exceedingly familiar, which, in the commencement exciting little solicitude, have, from a neglect of this sort of depletion, run on to the establishment of inveterate and even fatal lesions. Whether with a view, therefore, to immediate relief from the pressing evil, or as a measure of prevention against more serious mischiefs, depletion in the way and to the extent I have advised is imperatively demanded.

As a substitute for the lancet in less urgent cases, or on considerable reduction by it of vascular force, leeches or cups to the chest may be usefully employed.

Of the late writers, some seem to prefer the detraction of blood from the remote parts, as the vulva or anus, on the principle of derivation. Excepting, however, in those instances occasioned by a suppression of the catamenia or hæmorrhoids, (and here, probably, answering better, it should be adopted,) I think an application over the seat of the affection is more certain and advantageous. But it is maintained, and by very high authority, that both topical and general bleeding, instead of proving reme-

dial, serve, on the contrary, sometimes to excite hæmorrhage. "I have noticed," says Laennec, "a return of the menses, and an increase of the menorrhagia during an application of leeches to the epigastrium. General bleedings, more particularly those of small extent, appear occasionally to have a similar effect on hæmoptyisis." Clarke, one of the most respectable of the late writers, also states, that in a plethoric person, threatened with apoplexy of the brain or pulmonary hæmorrhage, the use of leeches may, and, he believes, frequently does decide the occurrence of the very disease it was intended to prevent, in proof of which, cases are given by him. Creditably as the position is sustained, I still doubt exceedingly the accuracy of the fact, and am disposed to consider such occurrences as rather coincidences than effects. They are, at least, contradictory to the tenour of observation and experience. But while thus vindicating the utility, and even absolute necessity of bleeding, I am no less sensible that there are limits beyond which it ought not to be carried. As in profuse or repeated hæmorrhage itself, any great excess in the operation is followed by the febrile movement, unequal distribution in the circulation, with a tendency to further effusions, or even, sometimes, to a general vitiation or cachexy of system. Counter-irritation, by a vesicatory to the chest, will supersede the necessity of any undue loss of blood, and, in every view, is so important that it should not be neglected.

Cold applications to the thorax, and particularly under the arm-pits, have been proposed as further means of suppressing the hæmorrhage. No part is more susceptible than the axilla, and such applications are said to prove very effectual. The origin of the practice may be traced to an Italian writer early in the last century, who directs the naked breast to be covered with sponges dipped in cold water. It has indeed been recommended on very urgent occasions, to wrap the whole body in a sheet wet with cold vinegar or water, or even to resort to immersion. The late Dr. Thomas Bond, of this city, a distinguished, though an eccentric, physician, is said to have pursued this course successfully. Bennet, on the contrary, tells us that the cold bath is perilous. Two objections have been raised against the use of cold in any way: that it is calculated to repel the blood from the periphery to the centre, and thereby aggravate the hæmorrhage, and subsequently to induce catarrh or pneumonic inflammation,

the lungs at all times being exceedingly intolerant of cold, in whatever manner applied, and the more so in a predisposed state to disease. Nevertheless, such an impression on the skin may, through the medium of sympathy, possibly constringe or otherwise close the bleeding vessels, and thus operate beneficially. An effect of this kind is conspicuously displayed in uterine floodings, and it should also be recollected, that cold applications to the surface are unquestionably sometimes of the greatest service in the phlogosis of the contents of the other cavities of the body, which, on the same principle of driving the blood inwardly, would, were it not for the lessons of experience, be equally contra-indicated. The cold bath, however, I should still very reluctantly try, except in the extremest emergencies, and where other measures had utterly failed.

Greater authority have we for the use of cold drinks, which seem to have been employed from the earliest down to the present times. No one, perhaps, has borne such strong testimony in their behalf as Martin Ghisi, he who first described croup. Cases of the most profuse hæmorrhage are reported by him, which were very speedily checked by a repetition of a cup of iced water every fifteen minutes. My own experience confirms this statement to some extent. The swallowing of small pieces of ice I have found, I think, still more effectual.

It was an early, and, for a very long time, an established practice, to apply ligatures to the legs, thighs and arms, promptly to suppress the hæmorrhage. "By this," says Van Swieten, "a considerable part of the blood is retained in the limbs, and a less quantity returns to the heart." Erasistratus probably introduced the remedy, which has been commended by Moreton, Lieutaud, Burserius, &c.* Being abandoned, I presume it was ultimately found not to answer the end, or came to be supplanted by other means of superior efficacy. Of these, among the more prominent, is the muriate of soda, a teaspoonful or more every five, ten or fifteen minutes, in substance. Dissolved in the mouth, and gradually swallowed, it is supposed to create a stronger impression on the parts with which the vessels of the lungs have the most intimate sympathy.

Few articles, perhaps, are more popular in hæmoptysis than the nitrate of potash. It is one of the most common of the do-

* Vid. Celsus.

mestic remedies in this city, and there is abundance of professional authority among the foreign writers in favour of it. From its general properties, we should presume that it has no direct control over a flow of blood. The quality of astringency it certainly does not possess. Yet it is often prescribed under such a conviction and in a large quantity. As much as an ounce of it has been given in the day. Thus freely exhibited, its utility being confirmed, the explanation of its modus operandi must be sought, I think, in the irritation caused in the stomach, by which action is diverted from the pulmonary vessels.

Even better established, perhaps, is the reputation of the acetate of lead. The mode of giving it is in the dose of a grain or two, with a small portion of opium, at short intervals. Conformably to our general notions, a large dose of the article ought to accomplish much more, and certainly it might be taken with safety. Yet, on one occasion, I directed twenty grains of it without any good effect. As in the case of mercury, may not the action of the lead be influenced by the quantity? The former is a salivant or purgative, according to the dose—and the latter may prove astringent or otherwise, in the same way. More am I inclined to think so, from having observed, in several instances, where very large amounts of it had been taken through mistake, that it operated altogether as a purge. There was, particularly, the case of an Irish woman, which I saw, with a sore leg, who had been directed to take an ounce of Glauber's salts, and to wash the ulcer with a solution of two drachms of sugar of lead in a quart of water. Endowed with the Hibernian propensity to blunder, she reversed the matter, swallowing the lead and making an application of the salts to the sore. Even this immense quantity of the article had no other effect than to bring away a number of watery stools with some griping.

To the utility of one of the preparations of zinc, namely, the vitriolic solution, a compound of the sulphate of zinc and the sulphate of alumine, in this haemorrhage, we have the evidence of Mosely, and of the late Professor Barton, strongly and unreservedly expressed. Of my own knowledge I can say nothing in its favour, and on the same footing would I place the preparations of copper, so highly praised at one period.

By some practitioners the efficacy of another class of remedies, the narcotics, is fully accredited. No benefit, I presume, would

result from the henbane and hemlock, though commended. But opiates promise more. It has been alleged against them, I am aware, that they are stimulant, and hence improper in this case. But, while granting this property to them, let it be recollected that they have the effect of assuaging pain and doing away irritation, by which excitement is so tempered that they may do good, where, influenced by general principles, they would be prohibited. Nevertheless, for a long period I was not prepared, by my own experience, to vindicate to the full extent the propriety of this practice. Whenever I directed it in the early stage of hæmoptysis, there was great irritation, attended with cough, and here I thought the call for it indisputable. But, for some years past, I have made a more general application of it, and, I think, very successfully, to this and other hæmorrhages. The mode of operation of opiates has been partly explained in regard to certain cases. Further must we look, however, to embrace the whole of their beneficial effects. These are, probably, referable to their peculiar action on the nervous system. It has already been shown that hæmorrhage is immediately dependent on an altered condition of the capillaries, without which, indeed, blood could not escape, ascribed to some defect of innervation. Now, by the supply or rectification of this, it is presumable that opiates restore the extreme vessels to their normal state, and arrest sanguineous effusions.

Digitalis, from its influence over the circulation, has been extolled in active hæmorrhages of every description. But as a substitute for the lancet, for which it is proposed, I know it is totally ineffectual, and ought never to be trusted. Even where vascular action is reduced by direct depletion, it has appeared to me very precarious, and decidedly inferior to many other remedies. In the ordinary dose, much time elapses before the pulse feels its influence, and, if it be increased largely, there is such general prostration, with relaxation of the vessels, that a more copious effusion may be apprehended. An egregious error has been committed in the various applications of this medicine to hæmoptysis. The case to which alone it is suited will hereafter be indicated.

Emetics have been employed in hæmoptysis with great success. My experience in regard to them is, however, chiefly confined to less active hæmorrhage, to which I believe them sin-

gularly well adapted, and what I have further to say in regard to them I shall postpone until I reach that part of the subject.

Doubting, as the generality of practitioners do, the propriety of emetics in active hæmoptysis, there is almost an undivided opinion as to their utility in small doses. The whole of this set of medicines may, perhaps, be applicable. Tartarized antimony is much employed, particularly in highly febrile states.*

Generally speaking, however, ipecacuanha is preferable to any of the antimonials. Distinct from the power which it in common possesses with these preparations, of depressing vascular action, it seems, also, to exercise a positive control over the hæmorrhagic disposition. Combined with the acetate of lead and opium, it sometimes proves more efficient than either article separately.

Nothing has hitherto been said of purging, which, however, whether we have regard to the reduction of vascular force, or the removal of local congestion, or the irritation induced by constipation, is not to be omitted. By Sydenham, who urged it to a considerable extent, and with the very active articles, its value is strongly insisted on. Laennec also affirms that a drastic cathartic or enema frequently checks the hæmorrhagic *molimen*, especially if productive of faintness, and altogether highly commends the practice. Castor oil, however, if the stomach be in a state retentive of it, answers well. Magnesia, which is sometimes selected, is apt, on account of its huskiness, by tickling the fauces, to excite coughing, should be avoided, or very carefully comminuted and mixed in the preparation. Much testimony might be collected, in this country, in favour of the sulphate of soda in ounce doses, as well to arrest promptly the flow of blood as to effect complete cures. But hitherto its use has been restricted mainly to cutaneous hæmorrhage, arising seemingly from some idiosyncrasy, under which head I shall more fully speak of it.

The remedies mentioned, or some of them, at least, are those of the highest repute, with the design chiefly of suppressing the flow of blood. It is obvious, however, that, on the accomplishment of this end, some further treatment may be demanded. The system, for the most part, is left febrile, or, at least, too highly

* The exorbitant use of this article, after the mode of Razori, was tried by Laennec, who reports that, though it appeared to lessen the discharge, it did not produce the same admirable results as in the case of pneumonia and some other purely inflammatory diseases.

excited, and to do away this state, an important consideration, a recurrence may be had to the mild febrifuge remedies, among which the antimonials are the best, alone, or with the nitrate of potash. This is the occasion where I have principally used these articles, and to which I deem them exceedingly appropriate. Exciting diaphoresis or diuresis, especially, they hardly ever fail of producing the most unequivocal advantage. To appease the cough or pectoral irritation, opiates and demulcents may be required.

Meeting with considerable depravation of the *primaæ viæ*, indicated by the furred tongue, morbid secretions, habitual constipation, &c., which is not uncommon, the proper treatment is by three or four grains of the blue pill at night, worked off the next morning by a laxative.

In place, however, of the active hæmorrhage of which I have now disposed, cases are to be encountered in a very opposite condition of system. They are chiefly found among the valetudinary, and especially those of scrofulous or tubercular tendencies. Manifestations of incipient or more advanced consumption exist in many instances. Together with a dry, diminutive cough, hurried respiration and more or less pain or uneasiness of chest, we have a quick, irritated or very feeble pulse, occasional hectic flushes, much prostration of strength and a pallid or sallow skin, with softness, flaccidity and bloatedness. The discharge of blood may be small, in sufficient quantity merely to streak the sputa, or perhaps a mouthful or two of it, and then ceasing for a time. Extreme laxity of the exhalents existing, or proceeding from congestion of the lung, it is copious, pouring in a stream, so that a pint or more escapes.

In the cure there are mainly the same objects to be attained as in the preceding form of the disease. The first is to check the bleeding when profuse, and to which end the means before enumerated, except the evacuant or otherwise depressing, may be employed. Even these, however, are not totally to be excluded under certain circumstances. It may, indeed, become indispensably necessary, where there is very heavy oppression, to take away a small portion of blood generally or topically. Dry cupping, however, in less emergencies, is sometimes very advantageously substituted.

As an additional remedy, the spirits of turpentine should be

mentioned, given in the dose of ten, fifteen or twenty drops, very frequently repeated. The powdered capsicum, in four or five grains, repeated in the same way, has also been recommended, though its propriety seems to me very doubtful. From a scruple to half a drachm of the nitrate of potash in an ounce of brandy is very effectual, according to some recent reports. Without the brandy, which is here proposed in rather a *staggering* dose, nitre has long been prescribed, and with repeated success. Neither of these two last remedies have I tried. Cullen praises alum, which I have not found of service,—and the same remark applies to certain vegetable astringents, as kino, catechu, &c. Greater advantage may be derived from the elixir vitriol, ten or fifteen drops at a time, adequately diluted in sweetened water, and much has recently been said of the kreosote.

Frequently the most decisive of all measures is an emetic, the *modus operandi* of which is not obscure, and the practice may be vindicated *à priori*, independently of any evidence of facts in support of the deduction of reasoning.

In hæmorrhage there is a want of equilibrium in the circulation, occasioning irregular determinations of blood, some one organ being surcharged at the expense of other portions of the system. The impression of the emetic, in conformity with an old aphorism, “*ubi irritatio, ibi affluxus*,” probably invites primarily a current to the stomach as a centre of fluxion, and thereby immediately tends to exonerate the previously affected organ from its oppressive congestion,—and secondarily by filling the cutaneous vessels especially, re-distributes the blood, and hence restores that just balance which had been subverted. Effects like these from puking are very observable in the congestive forms of fever and other acute diseases. In our late typhoid epidemics, both of the winter and summer, how effectual this process proved in relieving engorgements of the great viscera is sufficiently known. Numerous were the instances which I saw myself of its extraordinary success where the liver, or the spleen, or the lungs, or even the brain was unduly loaded.

But more than I have indicated is to be ascribed to emetics in restraining hæmorrhage. Nausea itself represses the force of the circulation, and in some cases must be useful,—though it is to the controlling influence over the whole of the capillaries, changing

that condition which admits of sanguineous exhalation, that their efficacy is mainly owing. As colliquative perspiration, watery diarrhoea and hydropic effusion are sometimes arrested by vomiting, so does it operate in haemorrhage. The exhalents in all these cases, under certain circumstances, become morbidly changed,—and a sanguineous or serous discharge ensues, according to the peculiar modification of condition which may exist at the time.

It remains only to detail some of the results of my experience, in confirmation of the efficacy of the practice which has been suggested, to be illustrated by a few examples.

In 1807, I was called to a young man of consumptive tendencies, who, for several months, had suffered occasionally from haemoptysis, and was treated by another physician in part by digitalis. Being suddenly attacked with a copious effusion of blood, he took before my visit an exorbitant dose of the medicine which excited vomiting; the haemorrhage ceased, he became convalescent, and ultimately recovered. Effects so decided I did not then impute altogether to the act of puking. As often happens from digitalis, an extremely distressing nausea continued for several days, to which I thought it probable the permanent benefit was in a considerable degree owing.

Encouraged, however, by the cure, and influenced, perhaps, still more by theoretical notions of the nature of haemorrhage, and of the applicability of the remedy to it, I resolved to subject the practice to a further and fairer trial.

It was not long before I had an opportunity of doing so, in the instance of a young man from the country, whom I had been attending for several weeks, for pulmonary consumption. Three years previously to my seeing him, he was compelled to abandon the study of the law on account of the frequent recurrence of spitting of blood—and when he came under my care was far advanced in phthisis. One night he was aroused from sleep by a repetition of the haemorrhage, and on my arrival had lost more than a pint of blood without any diminution of the flow. Common salt, sugar of lead, and such like articles were used in vain, —and bleeding, generally or locally, seemed inadmissible, from the debilitated state of the system, and of the pulse especially. Excepting an emetic I was nearly destitute of resource in this emergency,—and accordingly twenty grains of ipecacuanha were

administered, which soon bringing on vomiting, the effusion was suppressed. On several subsequent occasions the same means proved equally effectual, though ultimately he died of the main disease.

I had within a month a third case, which afforded me a further opportunity of pursuing the practice, and of confirming my confidence in its efficacy. It was that of a young woman, who a considerable time before having suppressed her menses by an exposure to cold, had ever since, at irregular periods, suffered from hæmoptysis. When I saw her, which was in consultation, the hæmorrhage had already existed for forty-eight hours, the loss of blood very considerable, and she much exhausted. As the usual remedies had been unavailing, I induced Dr. Stewart, with whom I was attending, to try an emetic of ipecacuanha, which put an end to the hæmorrhage, and by proper management, subsequently menstruation returned, and with it a restoration of health.

More than thirty years have since elapsed, during which lengthened period I have pursued this treatment, and with such success as to have inspired great confidence in it. Like all other means, it will sometimes fail, as might be expected from the diversified nature of the causes and states of the hæmorrhage. But I am persuaded, when properly applied, it will be found to do more than any thing else, and certainly from my own observations, it never produced mischief in the vital or spontaneous extravasations. The emetic I have preferred, and, indeed, only prescribed in these cases is ipecacuanha.

To treat hæmoptysis in this mode is not a practice resting on my authority exclusively.

Towards the middle of the last century it was strenuously recommended by Dr. Bryan Robinson, of Dublin, whose publication on the subject attracted great attention. To his evidence in favour of it, might be added the attestations of several other respectable writers. Cullen, however, having tried the practice unhappily in a single case, probably from rupture, did much towards its condemnation, from the great weight of his authority. Neglected, it was not, however, entirely abandoned. We find, on the contrary, it receiving the support of Maryatt, Stoll, Bursarius, Mosely, &c. Willis, too, so celebrated for his skill in the treatment of mania, especially for the cure of George III. of

England, resorted to it freely, and declared that ample experience had taught him to confide in it above all other means, as well on account of its safety as efficacy. In this latter opinion, however, I do not entirely concur. Cases of hæmoptysis occasionally arise from rupture, by ulceration of vessels or mechanical violence, to which it is not at all adapted, and where, indeed, it might prove aggravatory or even fatal, and such are not always readily discriminated.

The second indication in this weak form of hæmoptysis is to invigorate the system, and through it to impart tone to the relaxed or patulous vessels, and to rectify the state of the blood itself. To attain this end, the various astringents and tonics are usually called into requisition. Before prescribing any of them, it were well, however, to be assured by a careful perquisition, that no congestion or inflammation, or more serious lesions prevail. The state of hæmorrhage to which they are almost exclusively adapted, is where the process of hæmatosis is badly performed, or the system is rendered nearly exsanguineous by previous losses of blood from hæmorrhage or in any other mode, that remaining being thin, pallid and impoverished, oozing out chiefly from its own tenuity. Great disorder or pravity of system, with the chlorotic or cachectic aspect, and extreme debility, are here observable.

The Peruvian bark was formerly among the first of the articles to attract attention. Many of the older writers confess its utility, and there are some who extravagantly praise it. But I seldom employ it, except in cases distinctly periodical in their nature, and here the sulphate of quinine is much to be preferred. It may be given alone, though its powers are sometimes improved by a combination with the chalybeates, of the efficacy of which much is asserted, and undoubtedly with justice. Eminently calculated are they to improve the constitution of the blood itself, and hence their utility in that species of hæmorrhage, owing to this condition chiefly. There is, however, a choice among the martial preparations. The muriated tincture is said to be best, though the carbonate, the sulphate or phosphate of iron answers very well, and especially the last. Lately, the hydriodate, lactate and citrate of iron have been also much praised.

Of the management of the idiopathic and more regular forms of hæmoptysis, I have now disposed. But it has anomalies

originating in some peculiarity of cause, which ought not entirely to escape notice. Most of such cases are of a secondary nature, and were pointed out in tracing the etiology of hæmoptysis. Emanating from the irritation of a tubercular or any other essential pulmonary lesion, or derangement of the heart, or of the abdominal viscera, the effusion of blood, incidental only, must be subordinate to the pre-existing pathological condition, in every rational or efficient scheme of cure. But the consideration of these primary affections were alien to my present purpose, it being reserved for the future. Nor can I, with propriety, do more in this place than summarily to state that when hæmoptysis is owing to a suppression of the hæmorrhoidal, catainenial or other discharge, or the repercussion of cutaneous eruptions, or the metastasis of gout or rheumatism, the endeavour should be to re-establish these several affections in their original positions, and then to aim at their eradication,—or excited by an elongation of the uvula, or enlarged tonsils, or any affection removable by a surgical operation, this is at once to be performed.

By prosecuting a course such as I have laid down, correctly shaping it to the peculiarities of each case, we shall frequently succeed in accomplishing a cure. Yet in some instances, and especially when it is connected with constitutional or local imperfection, hæmoptysis leaves behind it a liability to relapse on the slightest provocation. To guard against these repetitions of attack, a system of prophylactic instructions should be carefully suggested and undeviatingly observed.

1st. The exciting causes of the hæmorrhage must be pointed out and avoided. Taking cold is the most common of these, and at the same time is very apt to entail serious consequences. But there are others scarcely less to be apprehended, and among which are inordinate exertions of the voice. Let those especially, who are necessitated to pursue a profession dependent on public speaking, be impressed with the importance of moderating its tone. As one of many examples of the utility of this advice, we learn that Atticus, the friend of Cicero, having acquired the habit of vociferation, and suffering consequently from hæmoptysis, repaired to Athens, to be taught a more tempered and graceful elocution, in which succeeding, he had an exemption afterwards from the affection.

2d. In regard to regimen, some distinction is to be made, and

first as to diet. To the active form of the hæmorrhage, vegetable matter, particularly the mucilaginous or farinaceous, is best suited,—and to the other, light animal nutriment, as milk and eggs,—and I have known malt liquors in moderation sometimes to prove very serviceable. Exercise, in each instance, is of importance, provided it be cautiously used, and the system properly prepared for it. On this point great errors are committed. Not unusually, patients are ordered on horseback, or even sent on a journey, with activity of pulse and febrile excitement. From such mal-practice, a recurrence of the hæmorrhage, with aggravation, must inevitably result.

3d. To watch the state of the pulse and respiration. Either thoracic pain or oppression, or any considerably increased force of the circulation is a sufficient ground of apprehension, and must be removed without delay. To effect the purpose, small bleedings, general or topical, a still lower diet, a state of rest for the time, some laxative or perhaps febrifuge medicine, and, in short, the whole antiphlogistic plan in all its parts, may be demanded. Where a slight hæmoptysis is attended by a quick and irritated pulse, and considerable mobility and weakness, digitalis has been found useful. No longer admissible is the loss of blood, and that article may be resorted to as a substitute, so administered as just to affect the circulation, and keep it within its natural standard. This is the case that I formerly promised to point out, to which digitalis is, perhaps, only and certainly best suited.

4th. Great good has been experienced from a succession of blisters, and these, where there is considerable pulmonary affection, are to be applied to the chest: under other circumstances, they will do very well on the extremities, acting as divellents. It is to be borne in mind, that even in less active hæmoptysis, though there be general debility, *local congestion*, with sometimes inflammation, may exist,—and as the removal of these states is of primary importance, the appropriate remedies, though *depletory*, are not to be timidly withheld.

5th. In some very obstinate cases, a slight mercurial impression should be tried. The effect thus induced in the mouth serves, it has been said, as a diverticulum to the diseased action of the lungs. But more probably, by the general and revolutionary operation of mercury on the system, it supplants the disease, substituting its own peculiar action in place of it. To

those cases in any degree connected with obstruction of the chylopoietic viscera, it is particularly adapted. An exception to this practice is to be found in a tubercular state of the lungs, or vitiation of the blood, formerly described, with which the use of mercury is utterly incompatible.

6th. Emetics, occasionally repeated, are entitled to confidence. They operate, by breaking up the habits and associations which continue the predisposition, and are, also, well calculated to emulge loaded vessels, and to distribute the blood equally throughout the circulation.

Conduct, however, the treatment as we may, hæmoptysis sometimes presents itself, of a nature so stubborn, that it will resist all these endeavours. Consulted, in such cases, we should advise, as the very last resource, a removal to a temperate climate, and by a voyage, when practicable. This has very often protracted life, and even effected permanent relief, where every thing else had failed, and under circumstances the least promising.

Of the treatment of hæmoptysis, I have only a few words more to say, and these regard the conduct of the case during and immediately following the flow of blood.

1st. The moment we are called to it, a state of rest in bed is to be enjoined, with the shoulders elevated and the lower extremities extended, for reasons before stated.

2d. The chamber is to be kept cool and well ventilated.

3d. Company should be excluded, and the patient not permitted to talk.

4th. Diet to consist of small portions of demulcent drinks, acidulated and drank cold. It is right that the stomach be not loaded, as through it the lungs become oppressed.

5th. The bowels to be kept in a soluble state.

Not the least of the errors committed in the management of this disease, is an attention too exclusive to the mere suppression of the bleeding. The fact is, as previously stated, that such hæmorrhages are, for the most part, the efforts of nature to exonerate the lungs of oppressive accumulations of blood, or to reduce phlogosis, and, if not excessive, are probably as salutary as epistaxis in the affections of the brain. They may, it is true, leave some coagula or clots in the bronchial or cellular structure, which sometimes do harm, and this seems to me to be the main objection to permitting the effusion to continue. These remarks

obviously apply to hæmorrhage of the mucous membrane only. It is very different with respect to the other form of the disease, where the consequences are so serious that it should be arrested as speedily as possible. Cases, however, of this kind are so rare that the principle is scarcely affected. No sound practitioner doubts that the hæmorrhage of itself is comparatively of little moment, the real object of attention being the correction more especially of the morbid state of the pulmonary organs giving rise to it, and which, if not timely arrested, results too frequently in the full establishment of phthisis, or some other fatal lesion of the lungs.

Contemplated in another light, the ordinary treatment of this affection seems to me to be amenable to criticism. Governed by no principle, pathological or therapeutic, it is empirical, or at least tentative, every sort of nostrum or specific being tried to suppress the effusion of blood. Genuine hæmorrhage may be mostly resolved into one or two conditions, either inflammatory or congestive, and to be managed accordingly, whatever removing these states being best calculated to put an end to the effusion, which is merely an effect. Guided by this view, and having little confidence in those articles usually deemed peculiarly appropriate, such as astringents, I seldom resort to them, preferring to conduct the cure on common principles, and by common remedies.

HÆMORRHAGIA NARIUM, OR HÆMORRHAGE FROM THE NOSE.

This title should be adopted, as precisely expressive of what is desired to be conveyed, to the exclusion of epistaxis, which really has no meaning in its application to this affection. The latter, however, having been conferred by Vogel, the nosologist, and approved by Cullen, has ever since pretty generally prevailed, and is the only one employed by the profession in Britain and this country. Habit, I fear, has too strongly confirmed it to admit of its being superseded.

Bleedings from the nose may be, as the other hæmorrhages, either active or otherwise. The first state is often preceded by evidence of undue determination of blood to the head, as a sense

of fulness or tensive pain, vertigo, tinnitus aurium or other noises, flashes of light before the eyes, which latter are sometimes injected and red, a flushed, tumid countenance, heat and itching in the nostrils, with even a slight degree of swelling, attended by throbbing of the carotid and temporal arteries and activity of pulse. It sometimes puts on a more distinct febrile character, and here, previously to an attack, there is a cold fit, succeeded by fever, or only alternate chills and flushes, observing, in the return of the paroxysms, with more or less precision, the order of regular intermittents,—while, in other instances, it comes on without any premonition whatever, a gush of blood following the slightest exertion or any excitement. The discharge may be from one or both nostrils, though rarely from both, and, when it does happen, is much larger from the one than the other.

As the vessels spread over the Schneiderian membrane are exceedingly numerous, forming a complete reticulated texture, with a thin and delicate covering and very much exposed, we are, at all times, peculiarly liable to this hæmorrhage, but it is most common at an early age, again towards maturity and on the decline of life. Menstruation occurring, a new train of action is established, and it is comparatively seldom met with in women where this function is uninterruptedly performed.

Distinct from the period of life, which certainly has an influence, the predisposition to epistaxis chiefly consists in a certain conformation,—the short neck and large head, by which blood is disproportionately invited to the part. It takes place, however, under very different circumstances. Generally to be met with in the full or plethoric, the opposite condition is not exempt from its occurrences, provided there are irregularities in the circulation, with special directions of blood to the head. Numerous circumstances conduce to the latter effect, among which are violent exercises, certain efforts in a bent position, straining at stool, also loud speaking or singing, or sneezing or coughing, playing on wind instruments, exposure to intense heat or the reverse, cold, and especially cold feet, stimulating ingesta, constipated bowels, tight lacing or cravat. From loud sounds, as a clap of thunder or the explosion of cannon, it has suddenly gushed forth, and, sometimes, from very slight jarring noises. Blanchard says he has seen it to occur by the ringing of bells. I had a friend at Edinburgh who assured me that he was never exposed to the

screechings of the Scotch bagpipes without fulness of the head, often leading to an effusion of blood,—and I have somewhere read of an individual in whom the discords of music operated as a sternutatory, beginning with sneezing and ending in the escape of blood.

It is sometimes, too, excited by acrid fumes, and may be by pungent or the blandest odours. I once knew an individual who could bring it on by smelling cheese for only a few minutes, and have heard of another in whom rotten apples had a similar effect. Bruyerin, indeed, gives an instance where the soundest apple induced it—and Rhodius tells us that it has followed the smelling of a rose. Moreover, it is occasioned by mental emotions, rage or terror, or a very excited imagination, or intense study, or anxiety with insomnolency.

Caused by blows or falls, or other acts of violence by which vessels are ruptured, so frequent a mode of its production, it does not come within the definition of vital hæmorrhage, and hence is excluded from our present consideration.

But, in common with other hæmorrhages, it is sometimes of a secondary nature, induced by all those pre-existing lesions of organs or structures heretofore enumerated. Especially, however, does it result from cerebral fever of high excitement—or the reverse, the low typhoid conditions, and, above all, perhaps, obstructions of the abdominal viscera, the liver, spleen, &c. It may be added, that it is often consequent on the suppression of the catamenial and hæmorrhoidal discharges.

Mainly in these modes is epistaxis, in its several grades of activity, produced, and, when purely passive, to which state I think it more liable than any hæmorrhage, it must be usually assigned to changes in the blood itself, wrought by those circumstances formerly enumerated, by which the vital powers are impaired and it rendered more fluid. But what I have said has reference only to the etiology of epistaxis in its common presentations. Like other hæmorrhages, it sometimes prevails so generally as to amount to an epidemic, and to this character I am inclined to believe it is particularly disposed. The most remarkable instance, perhaps, of such an occurrence, is to be found in Morgagni, who states that, from its wide pervadence, a great mortality took place from it in Tuscany and other parts of Italy.

During the year 1823, hæmorrhage of every description, though mostly from the nose, was observed among us, extremely copious and difficult of suppression. No satisfactory explanation can be given of these occasional wide-spread prevalences of hæmorrhage. Certainly they are not owing to the excesses or variations of temperature, or the usual states of the atmosphere. But the latter may undergo some other change at the period, and, from the well-known influence of its rarefaction in this respect, such may be that change.

Epistaxis cannot be confounded with any other affection, and the only concern as to the diagnosis refers to the discrimination of its own varieties, having regard, in the first place, to the mode of its production—and next, to its precise character and the state of system with which it is associated. These are particulars so easily learned by an investigation of the case, that the subject may be dismissed without further remark.

Not in excess, the active form of this hæmorrhage is to be deemed salutary, whether it occurs in a general plethoric condition or in special determinations—and hence the relief from it, in the excitement of fevers, and, perhaps, in every acute, inflammatory or active congestive disease. No one who has not witnessed it can well appreciate the effect of the loss of even a few ounces of blood from this source, in the cerebral affections particularly. An explanation, however, of the fact is afforded in the arrangement of the vessels of the nasal lining. These are supplied chiefly from the internal maxillary artery, which, inosculating freely with some of the ramifications of the internal carotid, blood is diverted from the brain, and its oppression mitigated or relieved. But the consequence of this hæmorrhage is very much the reverse when of a less active, and, still more, of a passive nature, or it is postponed to the advanced stage of these affections, having then only a tendency to increase exhaustion, and is, indeed, mostly to be considered of fearful import.

Being active and original to the part whence the effusion takes place, it is of easy management—and difficult or troublesome, and even dangerous, under opposite circumstances, and the more so if derived from obstructions or other organic lesions of the thoracic or abdominal viscera.

Confirmed into a habit, it is uniformly to be dreaded. Hippocrates remarks that, thus subjected, young persons are apt to

incur disease of the chest, as pleuritis, pneumonitis, hæmoptysis and consumption, probably owing to a metastasis of the nasal irritation to the lungs. But such not taking place, it is held to have a contrary effect, or preventive of pulmonary lesions.

By the long continuance of it the system becomes exceedingly deranged and health impaired in various ways. Even the more recent attacks of it sometimes present the most formidable aspect, proving exceedingly intractable or utterly unmanageable. No hæmorrhage is occasionally more profuse, or in which larger quantities of blood are lost, and, among other instances which might be cited to this purport, Bartholin mentions a case of forty-eight pounds within a period not given—Rhodius, another of eighteen pounds within thirty-six hours—and a respectable writer in the Leipsic Acta Erudita, a third, of not less than seventy-five pounds within ten days. The Ephemera of Natural Curiosities contains a case where the quantity is not stated, from the difficulty of taking an account of it, which continued, without cessation, for six weeks.*

In 1820 I attended an elderly gentleman who, during a night, must have lost several quarts. He frequently fainted, on which there was uniformly a suspension of the flow, recurring, however, on his revival.

Nearly about the same time one of our most distinguished citizens died of this hæmorrhage, after three weeks' continuance, which the best skill could not control. As well from his general aspect as that of the blood, which was thin and nearly colourless, he must have become almost exsanguineous. More recently I was consulted in the progress of such an attack, in the vicinity of this city, which ended fatally. Cases of this kind usually occur in persons advanced in life, and of very vitiated habits, having their viscera, the liver or spleen, much disordered. They often prove fatal.

Of the morbid phenomena, on dissection, in epistaxis, I have no knowledge, so far as regards the immediate seat of it, the case not being of sufficient importance to have attracted attention. They may, however, be presumed, from analogy, to be such as are presented in other hæmorrhages of the mucous membrane. Extraneous formations, as polypi, fungoid and other growths,

* Good.

or a varicose state of the vessels, which has also been observed, occasionally productive of bleedings, are not properly incidents to spontaneous or vital hæmorrhage. In the secondary forms of the affection we often discover great disorder of the thoracic and abdominal viscera, the lungs, the heart, the alimentary tube, the liver and spleen especially.

Nothing, perhaps, need be said of the pathology of epistaxis, it being, also, in this respect, analogous to the hæmorrhages of other mucous surfaces, and hence I shall dismiss it with merely suggesting the resemblances between it, in its active form especially, to apoplexy, in the causes and preclusive symptoms, the direction of the extravasation of blood from the nostrils or brain being determined, as it were, accidentally. This is one of the most interesting views in which the affection can be contemplated.

Epistaxis exacts some difference in the treatment.

Connected with a state of vascular force or cerebral determination, the blood should be permitted to flow as an effort of nature to afford relief, and when demanded, we have to call to her aid venesection or local bleeding, and successively, the evacuant and antiphlogistic measures of nearly every description.

To obviate a recurrence of this state of things, the same course may be required to be pursued for a length of time, consisting in occasional bleeding, purging, the liberal use of the nitrate of potash, low vegetable diet, moderate exercise, and in the careful avoidance of the exciting causes.

It has, indeed, been questioned, how far it is proper, under such circumstances, to interfere at all with a hæmorrhage usually so beneficial. The fact is, that our exertions are intended for the removal of the condition producing it, and which, if allowed to remain, instead of this safe discharge from the nostrils, may occasion a cerebral or some other effusion, where the consequences become alarming or even fatal.

Epistaxis, however, is, also, of a less active nature, and is then marked by no repletion of the circulation. The pulse is without augmentation of volume or force, or may be considerably below the natural degree in these respects, or small, quick and irritated, denoting a debilitated system, and which is further manifested by the pallid or sallow skin, cold feet, soft and flabby integuments and loss of muscular power. The blood which escapes is of a light colour and very thin, as if diluted with water,—yet

local congestion may here, sometimes, be detected. Cases of this sort are exceedingly troublesome, the flow of blood being often alarmingly copious and difficult to be restrained.

In the absence of all fulness or excitement, we are called at once to suppress the hæmorrhage, as any further expenditure of blood is not allowable, and to effect which a variety of expedients, regular or domestic, has been proposed. The patient is to be placed sitting, in a cool situation, even in a draft of air, with the head inclined backwards and the feet immersed in a stimulating warm bath. Cold applications, as a cake of ice, or cloths rung out of the coldest water, are next to be made to the nostrils, or back of the neck, or to the genital organs, which last, having great sensibility, such applications to them prove very effective. Let, at the same time, the sides of the nose be pinched by the fingers till a coagulum is formed. These means not availing, dossils of lint, dipped into a solution of the sulphate of alumine or the acetate of lead, or the sulphate of zinc, or copper, or the muriate or sulphate of iron, or the infusion or tincture of galls, or kino, or the catechu, or the gallic acid, or the kreosote or some other styptic, that of Ruspini particularly, which I believe has much efficacy, should be pushed up the nostril. Blowing some pulverulent matter through a tube into the nostril, flour, or starch, or chalk, or Armenian bole, or charcoal, sometimes answers even better. The coal of a burnt cork, pulverized, is particularly recommended by Sims, of London;—the dust forming a coat over the surface of the membrane, chokes up the mouths of the patulous vessels.

In very intractable cases the head may be dipped in cold water, rendered intensely so by the addition of ice, which is said to be decisive by Darwin and other authorities.

An immersion of the whole body in a cold bath has been advised, and we are not without evidence of its complete success.* The patient, however, should continue in it for some time, so as to attain the sedative effect, or otherwise the object would be defeated by the powerful reaction excited by the sudden impression of the remedy. Yet it is the more common, in such emergencies, to endeavour to effect compression, by introducing a piece of sponge, properly shaped, into the nostril. This may be

* Philadelphia Journal of the Medical Sciences, vol. ii.

pushed in by a probe, or, where the bleeding proceeds from vessels very high up, it is suggested to tie a piece of catgut to the sponge, carry it through the posterior nares by a probe, and out of the mouth, by which the sponge can be completely drawn up. But though this is generally recommended, it will, I apprehend, be found exceedingly difficult in execution, from the extreme irritation induced in the muscles of the pharynx, and is altogether so uncomfortable, that it will seldom be submitted to long enough to be of any service. I recollect that it was a remark of Mr. Abernethy, in one of his lectures, that though he had often tried to do it, he had been uniformly baffled in the attempts. But, at the same time, he told us, that he had not seen a case in which he did not succeed in suppressing the hæmorrhage, by a plug exactly shaped to the cavity of the nostril, made of lint, first wetted and wound round a probe, which may be withdrawn on the introduction of the lint, keeping the latter in for several days.

But, perhaps, the simplest of all means of arresting the bleeding has lately been suggested. It consists in merely closing with the opposite hand the nostril from which the blood flows, while the arm of the same side is raised perpendicularly above the head. Neguier, of France, from whom the proposition comes, declares that he has never failed with it, in a practice of three years. To what credit he is entitled I know not. But the experiment may be easily made, though I confess I have no confidence in this expedient. Through the medium of the imagination, hæmorrhages are often checked, especially the nasal, even by charms, amulets or other impositions, and in the same category am I disposed to place this remedy.

An emetic, except it be positively contra-indicated by great exhaustion, I think ought to be tried in an emergency. It is only in a single case, that of an aged and infirm man, that I have ventured on the practice,—and though it did not succeed, it was productive of no mischief. Emetics, however, on the authority of Stoll, have been used advantageously. They sometimes prove very decisive in diverting blood from the head,—and their control over the capillary system is not less established, on which views we should be warranted in resorting to them, independently of the positive testimony I have cited, or any analogical conclusion from their efficacy in other hæmorrhages.

To evacuations of the bowels, unless constipation exists, no importance has been attached. But on every account, it seems to me, that a strong impression by an active, even drastic cathartic, promises well. The acetate of lead, and similar articles, alleged to be so useful in most other hæmorrhages, I do not think exercise here any power. But I am strongly inclined to suspect that opiates are of great value. For the last few years, I have occasionally directed them with success. Lately, I witnessed signal advantage from a dose of the Dover's powder, in a case that previously had very obstinately resisted the customary means, to which I was called in consultation with Dr. Jackson. The Dover's powder I have found to be incomparably the best of the opiate preparations. How it operates, I pretend not to determine with any precision. It may be by producing a change in the nervous system, certain conditions of which must undoubtedly influence hæmorrhage,—though something, I think, is also ascribable to the emetic substance entering into the composition of the remedy, as without it, neither opium nor its simple preparations have an equally beneficial effect,—and this conjecture is rendered the more probable, from the reputation ipecacuanha, in small portions, has long had in the hæmorrhagic affections.

Having arrested the bleeding, the patient may be permitted to repose in bed, with the head and shoulders elevated. But in children, care ought to be observed that the blood is not flowing through the posterior nares, as it occasionally does, when apparently checked, producing much inconvenience. I have known it to enter the trachea, and still oftener the œsophagus, and subsequently coughed or puked up in considerable quantities.

To do away the disposition to a recurrence, which, in some instances, is exceedingly inveterate, it is required to pursue a course of prophylactic measures. As a leading part of the plan, an endeavour is to be made to equalize the circulation, the balance in which is often subverted by a tendency to the head, and at the same time cautiously to recruit the tone and energies of the system. The first of these purposes, provided there be not too great debility, is met by purging, which is useful in the affections of the head generally, and particularly so in this, from torpor of the bowels usually attending it. Counter-irritation is likewise serviceable, and a blister to the nape of the neck has

of itself very frequently accomplished a cure. The application, however, of vesicatories may sometimes be made to the lower extremities, acting as divellents.

As a dernier resource, mercury, urged to a slight salivation, is said to have been appealed to with advantage, in singularly obstinate classes, though it is not to be indiscriminately employed. Certainly, it would prove injurious in the cachectic condition, dependent especially on a scorbutic or tubercular diathesis, and, perhaps, is most or only appropriate when the attack proceeds from lesions of the abdominal viscera.

During the progress of this treatment, it may be found, though the general circulation be weak, there are manifestations of cerebral determinations, to relieve which cups or leeches may be applied.

Thus having prepared the system, tonics, as the sulphate of quinine, alone, or with the chalybeates or the mineral acids, and a nourishing, though temperate diet, with regulated exercise, are to be directed.

Of the idiopathic shape of the disease, I have nothing more to say. But it is also met with of a secondary nature, proceeding from metastasis, or is the effect of diseased viscera, the liver, or spleen, &c. It is plain, in the management of such cases, having suppressed the floy, attention is to be called to the primary affection, to re-establish the hæmorrhoidal or catamenial discharge, or to remove the morbid condition of the viscus affected, as the one or the other may be the remote cause of the hæmorrhage. But I shall decline now pointing out the remedies, as I should have to repeat what has previously been the subject of ample discussion.

HÆMATEMESIS, OR VOMITING OF BLOOD.

It were better to call it hæmorrhœa ventriculi. Even this term, however, is wanting in precision, since the effusion of blood sometimes remains in the stomach, even unto death, and on other occasions is discharged upwards and downwards, resembling more cholera, or by purging only.

For a long time it was supposed that the discharge here came uniformly from the stomach. But it being ascertained that simi-

lar extravasations also take place from the intestines, the liver and spleen, and are occasionally ejected by puking, the whole of these cases have been comprehended under the same head by Pinel, Good and some other of the modern writers. Even thus extended in its meaning, the term hæmatemesis is still a very bad one, expressive only of a symptom, and of that imperfectly.

Comparatively seldom is this hæmorrhage an acute affection, and when it does so appear, is, for the most part, the consequence of some mechanical injury, and may be deemed of a traumatic nature. Certain fevers, it is true, are attended by vomitings of dark fluids, and which, though probably consisting of altered blood, the case still differs in every material feature from hæmatemesis proper, and cannot fitly be brought into the same category.

An attack of hæmatemesis sometimes comes on without any premonition, the ejection of blood being the very first occurrence. But oftener it is preceded by the ordinary signs of vomiting. Nor is it unusual for those phenomena to pre-exist which belong to the condition vaguely denominated dyspepsia. Except, indeed, in the most acute seizures, we shall find anorexia or the reverse, a voracious or an irregular appetite, oppression after eating, sometimes tenderness of the epigastrium, furred tongue, in the centre and at the root, with florid edges and tip, constipated bowels, &c. Cases more inveterate are marked, also, by cardialgia, flatulence, sour, fætid eructations, palpitations of the heart, dry skin, pale, or sallow and doughy, depressed spirits, muscular weakness, and a feeble or small and corded pulse. Mostly, under all circumstances, the attack is anticipated by alternate chilliness and flushes, a sense of tension of the stomach, and by burning or pricking in it, with weight and anxiety about the præcordia,—nausea and confusion of the senses,—a disposition to syncope, and much jactitation, and depression of spirits.

Not a few of these latter symptoms, however, are referable to oppression of the stomach from a mass of blood in it, collected previously to vomiting, and it may be remarked in confirmation of the conjecture, that on its being thrown up, the greatest relief is for a time afforded. But unless the hæmorrhage is checked, the same train of affections recurs, till finally absolute exhaustion takes place. The ejected blood varies, as well in quantity as quality,—small, or extremely copious, dark or florid—the

latter not common—sometimes resembling tar in colour and consistence, and, in other instances, like coffee grounds, or the sediment of port-wine.

But those instances excepted, proceeding from rupture of vessels or a phlogistic action, it is almost uniformly black, grumous or clotted. Fever is not common at this stage or subsequently,—the pulse being slow, soft and compressible, or exceedingly feeble, with cold, dewy skin, and lank, haggard countenance. Evidently are the recuperative powers heavily oppressed—it is difficult to raise any excitement, and still more to produce a complete reaction.

As suggested, however, the effusion in hæmatemesis may proceed from other of the abdominal viscera, or be vicarious to the suppression of the sanguineous discharge in some remoter or less connected organ. The upper portion of the intestinal tube being concerned, the symptoms are nearly the same as in gastric hæmorrhage, and issuing out of the lower bowels, there is a sense of weight and oppression, very characteristic in the hypogastric and pelvic regions.

Emanating from the liver, it is entitled melæna or *morbus niger*. Hippocrates considered the fluid as consisting of black bile or grumous blood, and the same notion was long entertained. The modern authorities, however, restrict these terms to hæmorrhage only, including under them such as proceed from any of the abdominal contents, by the mouth or anus, provided the fluid be dark.

When the liver or spleen is the seat of the effusion, with a loaded feeling, sometimes an obvious distension in the right or left hypochondrium is observable, according as the one or the other organ may be implicated, accompanied, in some instances, by vomiting or purging, headache, sallowness of complexion, particularly if the liver be concerned, some fever or entire absence of it, a low and feeble pulse, a heated or cold surface, and occasionally œdema of the face or of the lower extremities, or ascites, or all. Yet I have known such hæmorrhages independently of any apparent disorder or vitiation of system, breaking out unexpectedly, owing, perhaps, to sudden engorgements of the portal circulation. As to the phenomena of the vicarious discharges, they require no special recital. An attack of these is usually sudden, indicative of an afflux of blood to the stomach, produc-

tive of the symptoms of the primary affection of that viscus, with, at the same time, a suppression of the original discharge.

From whichever of the preceding sources it may come, the quantity of blood evacuated is, on some occasions, enormous. Cases of ordinary gastric hæmorrhage frequently occur where several pints are voided, and I have previously mentioned others connected with ulceration of the stomach, in which the amount was gallons in a few days. These latter, however, are, perhaps, not vital hæmorrhages.

Nor may it be less from the other structures. Examples are recorded of immense discharges of blood under such circumstances, one of the most remarkable of which is that by Michelotti in the Transactions of the Royal Society, for 1731, where a young man with enlargement of spleen, threw up in two hours more than twelve pounds of blood, and finally recovered.

In 1813, I was called to a man from the country, for supposed dropsy, whose abdomen was immensely distended and his lower limbs œdematosus, and with general cachexy. The case being equivocal, Dr. Hewson was brought into consultation, and very soon after we saw him, an evacuation took place upwards and downwards, particularly from the bowels, at first so copious and incessant, that a succession of chamber pots was filled. The evacuations continued for two weeks, though not as largely, till finally about eight gallons were voided. The abdominal intumescence progressively subsided, and in the course of a month he returned home apparently doing well. Whether the liver or spleen was concerned in this case could not be accurately determined, though the latter was suspected.

Nearly about the same time, I had under my care a mariner, lately from India, whose case presented very much the same appearance as the preceding, with, however, more unequivocal evidence of hepatic affection. During my attendance on him he was suddenly seized with vomiting of black, dissolved blood, which scarcely intermitted for three days, when he expired, having previously thrown up eight quarts, as nearly as could be ascertained.

Not long afterwards I attended a case in the Almshouse Infirmary, of chronic hepatitis, in which the discharge of the same sort of blood, chiefly from the bowels, averaged a pint daily for more than a fortnight, and which ultimately did well.

During the summer of 1829, I visited, with Dr. Rhea Barton, an aged gentleman having jaundice, who, in twenty-four hours evacuated probably three or four gallons of this grumous fluid. He expired with it flowing from his bowels;—and subsequently I saw, with Drs. Parrish and Sharpless, a young man who, apparently in good health, was suddenly and without any premonition, seized while walking in the street, with the same kind of discharge, where the quantity could not have been less, in half the period. Nothing which we attempted was of any avail and he sank completely exsanguineous. It seemed highly probable that the hæmorrhage came from the liver.

In 1835, I had a case, with Dr. Morton, very analogous to the foregoing one, in a young lady, who, in previous good health, was awakened out of her sleep by a purging of blood so profuse that, on my arrival, I found the bed filled with it. Continuing in this way for the greater part of the night, till a prodigious, though uncertain quantity escaped, it gradually ceased the next day, and she recovered. There was here every manifestation of intestinal hæmorrhage.

Lately, I attended, with Dr. Pancoast, a distinguished member of the bar of this city, who, for some time previously having laboured under some slight symptoms of dyspepsia, was, without any direct premonition, attacked with vomiting and purging of dark, grumous blood, so copious that, in despite of our efforts, he died from exhaustion on the third day, though the hæmorrhage was early checked.

Further instances might be adduced to illustrate the extent, the danger, and even fatality of this hæmorrhage. To account for such immense losses of blood is difficult,—and were they not so well attested, would be incredible. Yet they are not wholly inexplicable. We are aware of the copiousness of the effusion sometimes, from very limited external surfaces, of which we have ocular proof,—and it is not improbable, that in the visceral cases, by chronic congestion of an atonic nature, an enormous amount of blood previously accumulates in the affected organ in a stagnant state, ultimately poured into the alimentary canal. Every practitioner of experience has seen the whole abdomen distended by such a condition of the liver and spleen especially,—and there is an instance reported of the latter viscus having weighed ninety-three pounds, and many of prodigious

dimensions. An escape of blood under these circumstances is very different in its effects from the loss of it directly out of the circulation, and resembles more the exhaustion induced by the sudden abstraction of the extravasated fluid in ascites.

Diversified in its sources, many causes produce vomiting of blood, from which, however, are to be excluded acts of violence and all others by which vessels are ruptured—such not appertaining to vital hæmorrhage. Even this differs in several particulars which, perhaps, may deserve to be noticed. Females are most liable to it from the commencement to the termination of menstruation, and males at a more advanced period of life. The former have it chiefly as an acute and the latter as a chronic affection. Connected in the one with a plethoric condition and florid aspect, it is exactly the reverse as to the other—the appearances of leucophlegmasia, with a shattered constitution, being presented. Exceptions, however, are common to each of these general rules.

Gastric hæmatemesis, when of an acute and primary character, is excited by circumstances acting directly or indirectly on the stomach;—among the former are certain acrid, harsh or stimulating, poisonous ingesta—and of the latter, the influence of cold and other circumstances of a general nature concentrating their force on that organ and constituting it a centre of fluxion. Being chronic, its production is referable mainly to those agencies to which gastritis or dyspepsia is assigned. These I shall not now recite, having done it in detail, on a former occasion, when treating of these subjects.

Of the other varieties it may be remarked that the enteric is induced very much in the same way as the gastric, though more particularly by harsh purging or constipation—those of the liver and spleen, by whatever causes congestion or more permanent obstructions of these viscera—and the vicarious, by a metastasis from the hæmorrhoidal or uterine vessels, or those of some other organ, by which the hæmorrhagic irritation is transferred.

From the history I have given it may be inferred that it is not always easy to discriminate between the several localities of this hæmorrhage. Careful attention, however, to the more characteristic symptoms of each will usually conduct us to a correct decision. More readily may it be distinguished from hæmoptysis, which it sometimes resembles. It is seldom preceded or attended

by any pulmonary affection. No cough, dyspnœa or thoracic pain exists, and the blood is often mixed with the ingesta of the stomach and is brought up by vomiting. Nearly always it is, also, of a dark colour—while that in hæmoptysis of the mucous membrane is so only in those rare instances where, owing to excessive bronchial secretions, an imperfect decarbonization of the blood takes place, from the atmosphere inspired not fully reaching the air-cells.

Greater ambiguity will be experienced in the hæmorrhage incident to pulmonary apoplexy, from the darkness of the blood and its being ejected, in many instances, by a sort of convulsive effort somewhat imitative of vomiting. But here, among other peculiarities, there is extreme thoracic distress, which is very distinctive.

In its ordinary result, vomiting or purging of blood, when copious, is of serious import, as well from the immediate exhaustion induced by it, as from its denoting certain organic lesions or a general state of system not very manageable. There are, however, degrees of danger in these several occurrences. Caused merely by a turgescency of vessels, the gastric hæmorrhage is alarming—and still more so if connected with any organic lesion of the stomach. Not less applicable are these remarks to that of the bowels. An effusion from the liver or spleen, as being mostly dependent on great derangement, is very apt to prove fatal. Chiefly are recoveries from simple sanguineous congestion of these organs. Effusions of florid may be held far more favourable than that of dark blood—the one arising from an active condition and small in quantity, and the other the reverse in each respect.

Examinations, *post-mortem*, we are told, show, in the very active, acute, gastric and enteritic hæmorrhage, the mucous membrane of the stomach or bowels, or sometimes both, with diffused floridness, or streaked, or stellated, or its vessels only injected. But such appearances have been seldom noticed, and probably are of very rare occurrence. An infiltration which is, sometimes, so thorough that no washing removes the discolouration, may be mistaken, too, for the redness of phlogosis. Much more commonly it presents a darkish hue, from venous congestion, with patches of ecchymosis, though frequently otherwise, or of nearly its natural complexion, the vessels being emptied by the escape

of the blood. Lesions of a chronic character are also to be met with, sometimes a varicose state of the veins—or engorgement, or inflammation in every stage of its progress—softening or induration of texture, thickening or the reverse—common ulceration or scirrhosity and open cancer. But some of these phenomena can hardly be considered as belonging to vital hæmorrhage. The liver and spleen, when they are the seat of the hæmorrhage, are found in every variety of condition, either mere engorgement or the several grades of disorganization of structure, to the extremest extent.

Of the pathology of this hæmorrhage it is to be observed, in the first place, that its occurrences, when very profuse, are generally of an inactive nature. The blood, in the gastric and enteritic cases, comes from the exhalents of the mucous membrane—and, in the hepatic and splenetic, it is supposed to proceed from those of the interstitial tissue, passing out, in the former instance, through the ductus choledochus, and, in the latter, from the extremities of the *vasa brevia* into the stomach—neither of which is probable. Granting, however, that such may be the occasional modes of its escape, it appears to me very clearly that the effusion generally issues out of the mucous membrane of the alimentary canal, caused by an irritation derived from the diseased organs, exactly as they influence the production of serous and cellular dropsey. More distinctly expressed, I mean that, whenever these great viscera are obstructed by engorgement or otherwise, the capillary circulation of the neighbouring tissues becomes also impeded, and, as a result of this condition, there is from the exhalents either sanguineous or serous eliminations. Bichat has advanced very much the same view, or that, “in consequence of the impeded circulation through the portal vessels, the blood is more strongly determined to the extreme arterial capillaries or exhalents of the intestines, causing distension and effusions from these capillaries.” Dissection has, to a certain extent, demonstrated the fact, so far at least as that, on many occasions, the whole hæmorrhage had proceeded from the enteric mucous surface, where the reverse had been suspected, and no less indisputable is it that dropsey is occasioned, in like manner, by the extreme vessels of the peritoneum being affected. To the adoption of this hypothesis I am the more inclined, as affording the only satisfactory explanation of the entire problem. For, though

blood may sometimes come from the liver through its ducts, how can it get out of the spleen except by rupture of the viscus, and then into the peritoneal cavity and not into the bowels? The allegation of its transmigration by the *vasa brevia* really seems to me very feebly sustained.

Commencing the treatment of hæmatemesis with that of the stomach, I shall subsequently indicate the modifications of it required by the other varieties of the disease. Called to a case, however induced, with any activity of pulse or warmth of surface, venesection becomes proper, to be followed or substituted, according to the severity of the attack, by cups or leeches and a sinapism or blister to the epigastrium. Consulted in time, these remedies, with low diet and rest, will very often prevent the hæmorrhage. To check the flow of blood, the swallowing of the coldest water, or of ice itself, and cold applications over the stomach, are useful. To the same end various astringents are employed, as a solution of common salt or alum, or sugar of lead, or white vitriol, or the muriated tincture of iron, or the sulphuric or gallic acid, or the kreosote, or the spirit of turpentine. Excepting the last, which is undoubtedly serviceable, all the rest are, in my opinion, very equivocal medicines. Even the turpentine should not be prescribed when any height of inflammation is suspected.

Emetics, in the absence of phlogosis, are entitled to the largest share of confidence, and have been prescribed by me with signal advantage. To the use of them I was led by the views I entertained of the pathology of hæmorrhage, and particularly of their influence over the capillaries. More than any other process does vomiting, from ipecacuanha especially, change that condition of the exhalents which favours sanguineous effusions—though, in this case, not a little also is to be ascribed to its removal of large clots of blood by which the stomach is oppressed. Nor should we be unduly intimidated or discouraged from a resort to an emetic by the state of the pulse or general feebleness. This is a condition commonly to be expected—and, so far as I have seen, the recuperative energies are revived by the operation of the remedy, and especially when a large amount of blood is voided.

Two cases, out of a number in my possession, I shall select, to exemplify the safety and utility of this practice.

In 1818, I had under my care a girl of eighteen years of age, of a leucophlegmatic temperament, exceedingly distressed by the train of dyspeptic symptoms already enumerated, who, while under the common treatment for such affections, was in the night attacked with a vomiting of blood. On my visiting her I learned that, in less than an hour, she had thrown up about three pints, and the hæmorrhage continued, after I saw her, till nearly one pint more was discharged. The usual astringent remedies were unavailingly tried—and, as the exhaustion had become so extreme as to menace speedy dissolution, I resolved on the use of an emetic, encouraged by my experience of its success in some former cases of less violence, and ipecacuanha was accordingly exhibited very freely. Ejecting a large quantity of dark, grumous blood, she soon after became composed—her pulse rose—the skin resumed its warmth—and, before morning, I left her doing well in every respect. No return of the hæmorrhage took place on this occasion—and in a few weeks she went into the country, where I understood she completely recovered.

By a lady, who consulted me in 1827, I was informed that, from the cessation of her menses, some six months previously, she had been much afflicted by headache, burning sensations in the stomach, praecordial uneasiness, tension and tumidity of the epigastrium, nausea and periodical vomitings of small portions of blood.

Her appearance, at this time, was valetudinary—and, on the investigation of the case, I was confirmed in the suspicion I at once adopted, that, if not arrested, it must inevitably lead to a serious attack of hæmatemesis. But she was prepared to take a short journey—and, perhaps, confiding more in exercise and fresh air than in medical prescriptions, it was agreed that they should be postponed till her return to the city. Ten days afterwards my prediction was verified, for, in getting out of a carriage, she was seized with a vomiting of blood, repeated at short intervals, till the whole amounted to several pints. Her pulse being active, the skin tolerably warm, and some sensibility of the epigastrium existing, the treatment was commenced by leeches, followed by cold applications over the stomach and small portions of cold acidulated drinks. No advantage resulted from these measures, and, debility becoming alarming, she at length consented to take an emetic, which evacuated some considerable masses of blood,

and, for several hours, she was greatly relieved. The vomiting, however, again recurring, I had to repeat the emetic, which proved very effectual. Convalescence henceforward took place, and, by a properly regulated regimen chiefly, her health was pretty well re-established.

Not much is to be found of this practice in hæmatemesis. Excepting, indeed, some cases very analogous to those I have related, which were successfully treated in precisely the same way by Dr. Sheridan, contained in a late volume of the Dublin College of Physicians, I have been unable to discover any notices of it.

Concerning the other varieties of this hæmorrhage, I have to state that the treatment in the early stage of each is essentially the same, adapted to the condition of the system and to the part affected. Thus, in sudden and active congestions or phlogosis of the bowels, liver or spleen, we resort to venesection or leech, or cup and blister the centre or the right or left side of the abdomen, according to the indication. Cold applications, even of ice, are here also sometimes very beneficial.

Cases, however, of any activity of condition, and particularly those of the viscera of the hypochondriac regions, are seldom met with, and the detraction of blood, generally or locally, is hence inadmissible. Cold appliances, too, seem to do harm, by increasing the torpor of the venous circulation and thereby aggravating the already existing congestion. Blisters and sinapisms I have found nugatory. The effect of an emetic, under such circumstances, I cannot say, having no experience with it. From its known properties, and its decided utility in analogous instances, might it not be ventured in an emergency, and more especially as our resources are so limited and precarious?

On the whole, I have derived the most constant and unequivocal advantage in all these cases, including the active states of the hæmorrhage, on a proper reduction by depletion, from the liberal employment of the spirits of turpentine. More than thirty years have I prescribed it, and am prepared to affirm that it is deserving of greater confidence than any other known to me. The same favourable opinion is entertained of it by many of my medical friends,—and I have learned that Dr. Brooke, of Dublin, a very distinguished practitioner, has lately reported several cases of melæna treated successfully by it. My mode of giving

it, is the dose of from twenty drops to a drachm, repeated more or less frequently, according to the exigency.

Being loaded and distended, it is urgently required to evacuate the bowels. This condition is nearly always productive of extreme depression of the vital powers, evinced by feeble circulation, cold skin, heavy anxious breathing, and nausea or vomiting,—all which may probably be relieved by the removal of large quantities of grumous blood. Castor oil, with a portion of the spirits of turpentine added to it, I deem to be best adapted to the purpose. Even should no such accumulation exist, purging is useful, and cannot be safely pretermitted, where constipation or a tendency to it prevails. It is, indeed, said by the celebrated Hamilton, that a species of hæmatemesis, occurring in females in early life, is promptly cured by it only. That this particular hæmorrhage, which is proved to have no connection with any structural injury of the stomach, is a discharge vicarious to the menses, has long been maintained,—and such is still my opinion, since, among other reasons sustaining it, I have remarked in the cases coming under my notice, either a retention or suppression of the menses.

Transiently, it may be mentioned, that effusions of blood from some part are very apt to occur on a sudden suppression of the catamenia,—of which a case is related by Hufeland, of a woman who, having the discharge checked by taking cold, fell sick the same evening, and the next morning died. On inspection, three pints of blood were found in the peritoneal cavity, without, however, any inflammation or other lesions in any portion of the body.*

An instance very similar happened in my own practice,—that of a girl, who, having imprudently gone into a cold bath while menstruating, had the discharge stopped, and soon after was seized with raving delirium, of which she died the next day,—and on opening the cranium, large quantities of extravasated blood were observed in several portions of the brain.

Hamilton, however, contends, that the hæmatemesis he alludes to, proceeds from, or at least is mainly dependent on, a constipated state of the bowels, the fæces brought off being always copious and of an unnatural colour, consistence and smell.

The success of this, compared with the former mode of treat-

* Philadelphia Journal, vol. vii. p. 182.

ment, I will not take on myself positively to pronounce on,—though I am inclined to believe that purgatives have been too sparingly used in such cases. Certain it is, that in chlorosis, so intimately associated with the hæmorrhage before us, they are among our most efficacious remedies. Governed, however, by the view which I have expressed of the pathology of the case, it being essentially vicarious, it has been managed by me accordingly, having, as a principal object, the establishment or restoration of the uterine function.

As to diet in these hæmorrhages, some discrimination is demanded. During the flow of blood in the active form of them, cold, mucilaginous drinks acidulated, or ice water, or ice itself, in small portions, should only be allowed. But in an opposite state, and especially under circumstances of exhaustion, which often happen, more cordial and stimulating beverages become proper, such as wine, or even ardent spirits diluted. On the admission of food, care must be observed that it be of the mildest kind, and very little taken at a time. This precept, of general excellence, is especially so, as regards the affections of the stomach and upper bowels.

To check, merely, however, this or any other hæmorrhage, is partially to perform our duty. It remains, still, to guard against recurrences, which demands the ascertainment of the condition giving rise to it, and the institution of an appropriate treatment for its removal. Considering how often are the abdominal hæmorrhages inseparable from the most serious lesions of the viscera, such a course seems to be imperatively dictated.

HÆMATURIA, OR VOIDING OF BLOODY URINE.

These are wretched appellations, not at all conveying a just notion of the affection, which is really a hæmorrhage that may arise from the kidney, the ureter, bladder or urethra, and should be designated accordingly, hæmorrhagium renum, hæmorrhagia vesicæ, &c. From its derivation, hæmaturia strictly means mixture of blood, though the English phrase I have given is commonly adopted as its equivalent. The term hæmaturia is differently applied by the authorities, some using it to denote a bleeding from the kidney only, calling that of the bladder cystir-

rhagia, while others embrace under it the sanguineous effusions of the whole of the urinary apparatus, and in this extended sense, it is now mostly employed and, for the present, will be retained by me.

Coining from different sources, and occasioned by a diversity of causes, the symptoms of this hæmorrhage must necessarily be exceedingly modified. Generally, however, it is characterized by obtuse pain and sense of weight in the loins, sometimes extending down the thigh, with, perhaps, retraction of the testicle, the urine at first high-coloured only, then of a darkish red, owing to the dissolved blood, or tolerably clear with small clots floating in it, or the discharge may consist of pure blood, black and grumous, or be entirely suppressed from the urethra being choked up by coagula. This occurring, the bladder sometimes fills to a painful distension. Distinct, however, from such a condition, there may be great uneasiness in that viscus, dull, heavy or burning, or pricking sensations, and those of swelling in the perineum, with frequent erections of the penis and spasm resembling chordee, attended by tenesmus and strangury, or micturition.

Concomitantly with these local affections, some constitutional disturbance generally exists, evinced by fever or at least an irregular circulation and especially by headache and nausea, and retchings. The symptoms, however, as I have said, are extremely diversified. On some occasions there is apparently no affection whatever, except the discharge of blood, which passes away without any suffering.

Like every other hæmorrhage, this may proceed from general or local causes, though of the former, instances are of rare occurrence. But it has been seen by myself and by others occasionally to appear, consequent on a plethoric condition, with undue determinations of blood to the parts. No doubt whatever can be entertained of its connection with both inflammatory and congestive fevers, as well as other acute affections, in which some portion of the urinary organs has become involved. Certain articles, too, operating through the system, though from a sort of specific affinity, concentrating their force more immediately on the source of the hæmorrhage, lead to its production, —among which are phosphorus and cantharides, and in regard

to the latter, whether applied to the skin as a vesicatory or taken internally.

As a further illustration of the sympathetic production of hæmaturia, it may be mentioned that it has been noticed as concomitant on painful dentition in children, and excited by the irritation of worms in the alimentary canal. More frequently, however, it is met with from metastasis of the catamenial or hæmorrhoidal flux especially, or vicariously to these discharges. As incident to intermittent fever, it has been occasionally remarked recurring with the paroxysm and leaving in the apyrexia. Excessive venery is a further cause of it, and instances are mentioned where it was induced by vehement passions or emotions.

Nevertheless, hæmaturia is mostly to be traced to causes operating directly on the part, some violence done to the kidney by blows or falls, or from lifting heavy weights, or leaping, or hard riding. By the irritation of a calculus in the kidney or the ureter, or bladder, it is also induced, and there is a case recorded of its having been brought on by a worm in the second of these positions. Besides which, it is the effect of many organic lesions of these structures, arising from the numerous diseases to which they are exposed.

Every period of life is liable to this hæmorrhage, from childhood to extreme age, though it is more constantly seen among the old and infirm, broken down by gout or intemperate or debauched habits.

Especially have I found the habitual use, in excess, of old bottled Madeira wine conduce to this effect. Those, indeed, who have long practised such indulgence seldom escape lesions of the kidney. From new cask wine of the same kind, much less, and very often no similar injury results. Even when the affection existed, I have, in several instances, known it to cease by the substitution of the one for the other wine. Differently in these two states do they operate in several respects. The old seems to be retained, and uniformly distresses the nervous system severely, while the new goes off by the excretaries in the form of perspiration, urination or alvine evacuations.

It may happen where the amount of blood is small and thoroughly commingled, or it has undergone some change in its constitution, thereby rendered more pallid, or the urine becomes of a more reddish or darker hue from an excess of its saline

ingredients, or of lithic acid, a case is presented of some difficulty of discrimination on a superficial examination. But here, we are supplied with a test of great certainty. Dipping a piece of linen into the fluid, however minute the quantity of blood, it is stained of a reddish tinge, which does not take place otherwise.

Not so easy is it at all times, to determine the precise part of the urinary apparatus whence the blood escapes. As a general rule, however, it will be found in the renal and uretral cases, that, with much more lumbar affection, the blood is usually intimately mixed with the urine so as to give to it one uniform red appearance, whereas, in the vesical hæmorrhage it comes away in clots or flocculi, floating in the urine, and is accompanied by pain, a sense of fulness and tenderness of the pubic region, and those other indications of an affection of the bladder. No perplexity can exist with regard to that of the urethra, for independently of the absence of the symptoms appertaining to the other cases, the blood is emitted without mixture with urine, or any effort to its evacuation. It were fortunate could we come to any satisfactory conclusion concerning the several pathological conditions giving rise to this hæmorrhage. But sometimes it cannot be done, though much, in other instances, may be accomplished by a diligent investigation of the history of the case and comparison of symptoms, as well as by a careful inspection of the urine, which, containing mucus or pus or gravelly deposits, considerable light is shed on the subject.

Excepting in those acute cases, in a sound and vigorous constitution, owing to a general redundancy of blood, or local accumulations of it, or its occurring metastically or vicariously, and here, if not salutary, it does little or no injury, hæmaturia is to be deprecated, not so much from any danger in itself, as its indicating some serious derangements of the organs whence the hæmorrhage proceeds. Nevertheless, it may be immediately alarming in appearance, from an immense loss of blood.

In the winter of 1831, I attended an elderly gentleman of a very full, plethoric habit, who voided, on an average, about three quarts of nearly pure blood in the twenty-four hours for three successive returns of this period, and which continued in a diminished quantity till he became nearly exhausted.

Not many months afterwards he had a repetition of the attack, in which he lost, in the aggregate, perhaps an equal amount of

blood, though not in so short a time. Many recurrences of it had he subsequently, on each occasion profusely, till he died, which was not, however, of the hæmorrhage. Death, indeed, from it very seldom happens. The register of the Vienna Hospital shows only a solitary instance out of thirteen thousand six hundred and forty-seven cases of the affection.

Effusions from the kidneys and bladder are of course the most copious. Being, however, of a vital character, they either spontaneously cease or are readily checked, and seldom prove detrimental. But it is very different with the physical, or those dependent on organic derangements. The cause here enduring permanently, so must the effect, or if the latter be removed, it is temporarily, reverting again at no distant interval. The most ominous occurrence, however, of hæmaturia, is in the advanced stages of low fevers and other diseases of extreme exhaustion. But this happening, it is purely passive, a mere leakage of blood from the impairment or still feebler exertion of vital power, and can scarcely be deemed a genuine hæmorrhage. On the whole, our prognosis must be derived from the estimate formed of the condition of the parts and the system generally with which the hæmorrhage may be associated.

Of the autopsic phenomena in the acute and vital form of hæmaturia, I have no precise information. They may, however, be conjectured from the history of the disease, varied by the seat and cause of it. The kidney itself probably presents similar appearances to those in other parenchymatous hæmorrhages and the ureters, bladder and urethra, such as are observed in the mucous membranes generally. But in chronic cases, every variety of disorganization of structure of the kidney and bladder especially, has been reported.

Equally may its pathology be deduced from analogy, and I shall, therefore, occupy little time on a point, the discussion of which were merely a recapitulation of what has been, on preceding occasions, amply expounded. Excepting the cases caused by acts of violence or organic changes, every other may be referred to the mode in which I have shown vital hæmorrhage to take place. Like the rest, it comes from the mucous membrane of one of the several parts of the urinary apparatus and by exhalation. That from the kidney is not always an exception. Though it does proceed from the parenchymatous struc-

ture, it is equally certain that the mucous lining of its pelvis is, and, perhaps, oftener, the source of the discharge.

In the treatment of this we are to be guided by the same general principles as in other hæmorrhages, having special regard to the existing pathological condition. The case exhibiting local phlogosis or active congestion, or febrile excitement, we resort to venesection, cupping or leeching over the lumbar region, slight purging, demulcents, and especially an infusion of peach leaves, or of the petals of the red rose. The two latter articles, though apparently very simple, are the most efficacious with which I am conversant.

Many instances I have seen, that, resisting more energetic means, were relieved by these mild remedies. It is customary, I am aware, to rely here mainly on those astringents which are supposed so efficacious in the kindred affections. But really I have witnessed no decisive advantage from them, and certainly they are more appropriate to another state of the hæmorrhage, presently to be noticed. As usual is it to administer largely the diuretics, the nitrate of potash particularly, with the beverages promotive of its operation, to which I entirely object, provided the kidney be the seat of the effusion and already unduly excited. The reverse, indeed, is the indication under such circumstances rather to allay than provoke any increase of action, by forcing it to greater secretory efforts.

In a case of less activity, if admissible at all, venesection must be comparatively moderate and topical bleeding chiefly used. Blistering over the lumbar region is entitled to great confidence. That it has been strenuously opposed is not unknown to me, though on false grounds. From experience I have learned that it may be as safely and efficaciously adopted as in any of its ordinary employments. But the blister should be permitted to remain on long enough only to produce simply a rubescence of the skin, by which its beneficial effect is amply attained and the danger of strangury prevented.

This is the conjuncture to which I alluded, when the acetate of lead, the sulphate of alumine, the muriated tincture of iron, the gallic acid, the elixir of vitriol, the kreosote, and alike articles, may be tried with a fairer prospect of success. Yet I confess that I have found them, even here, of very doubtful utility. As to the *uva ursi*, so commended by some, it has totally

disappointed my expectations. But the tincture, in combination with gallic acid, is, of late, very favourably spoken of, which I have not used. The best article known to me is the spirit of turpentine.

Emetics had formerly great reputation, and I believe deservedly, though I have never had recourse to them,—finding, on all occasions to which I deemed them appropriate, measures less disagreeable to answer.

Much of this treatment is equally suited to hæmorrhage of the bladder. The topical applications are usually made to the pubes or the sacrum, as nearer the seat of the affection. Yet leeches to the groins and perineum are more effectual. It has also been proposed to inject into the bladder cold mucilages or astringent fluids, according to the indication.

Great suffering, I have said, is sometimes felt by a retention of blood from an occlusion of the urethra. This is removed, at once, by the introduction of a bougie or catheter.

It is obvious that the management of these cases requires to be further accommodated to their peculiarities. Excited, for instance, by calculi, and especially when a small one is lodged in the ureter, though the hæmorrhage may be slight, the agony is extreme. Disregarding the effusion, our attention must be directed to the mitigation of pain and to the passage of the calculus through the tube, by which complete relief is only afforded. Fortunately the means are the same with both intentions, consisting of general and local bleeding to a great extent, the warm bath and opiates chiefly as an enemata. Caused by any material structural lesions, it is better, in an inflammatory condition of the parts, to allow the hæmorrhage to continue, as serviceable, unless it be inordinately profuse. Then, or in a case of original debility, the balsams or terebinthines are to be preferred, in reference to a suppression of the effusion, and with a view to the alleviation of the pain, commonly an attendant, the opiates.

In the arrestation of this hæmorrhage, when active, from whatever source it may emanate, or the cause occasioning it, much will depend on the adoption of a course of living, to the total exclusion of every article, whether of food or drink, of a heating or stimulating kind, and, scarcely less, on the strictest observance of a state of rest during and for some time after the effusion. No less does the latter clause of this precept apply to the opposite

state of the affection,—but the diet should be more nutritious, though still bland, or without any irritating qualities.

Need it be added, that before dismissing the case, the pathological condition to which the effusion is owing, is carefully to be ascertained, with a view to its rectification or entire removal?

HÆMORRHAGIA UTERINA, OR UTERINE HÆMORRHAGE.

An opinion having been formerly entertained that the whole of the extravasations of a sanguineous aspect from the womb were of a menstrual nature, the term menorrhagia, which means an undue flow of the menses, was applied to this affection. Elsewhere,* I trust, I have shown that the catamenia, instead of blood, are a peculiar fluid, the product of a secretory action of the uterus. Nor is it true, as many suppose, that all of the periodical discharges from this source are menstrual. On the contrary, I have found, in every instance in which such were copious, pure coagulable blood to be emitted. Even where, in the commencement, the fluid seemed to be partially menstrual, it lost that character and became blood.

Granting, then, the correctness of this view, the impropriety of the term menorrhagia is obvious. Convinced of this, some have proposed the substitution of metrorrhagia. But, as it means only a discharge from the womb, it is vague and unsatisfactory. Nothing can more precisely express the affection than hæmorrhagia uterina, and hence it should be adopted to the exclusion of all other titles.

This hæmorrhage may take place in the unimpregnated or impregnated state of the organ, and precede or succeed delivery. The latter, or such as is incident to the gravid uterus, is occasioned in a mode, namely, by the rupture of vessels, which removes it from my consideration, and will be resigned to the department of midwifery. To me it belongs to treat only of the former, as properly vital or spontaneous hæmorrhage. This may recur monthly, with considerable exactness, or more irregularly, at shorter or longer intervals, or continue almost uninterruptedly.

* Elements of Therapeutics and Materia Medica.

But the law of periodicity is observed by it with greater uniformity than by any of its allied affections.

An attack of an active uterine hæmorrhage may be ushered in without any, or a very slight premonition, though generally by a train of precursory symptoms, lassitude and weariness of the limbs especially—sometimes chilliness, followed by fever, or, at least, by increased force or acceleration of pulse, headache, flushed face, embarrassed respiration, a sense of fulness in the uterus, pain, acute or dull, in the lumbar region or groins, with sensations of dragging or bearing down, attended by a frequent desire to urinate and occasionally by tenesmus. These phenomena are often connected with much of that sort of feeling expressed by the vague term nervousness. The discharge appearing, not a little relief is afforded unless it be very profuse, when the antecedent suffering is exchanged for the wretchedness of exhaustion, sometimes with nausea or vomiting, coldness and shivering, disposition to syncope, &c. &c.

Among the remote causes of uterine hæmorrhage, the most conspicuous is the period of life. Never is it met with previously to the season of puberty,—is very apt to occur slightly, in anticipation of the complete establishment of the menses,—again, when they are about to cease and, sometimes, very copiously. No period, however, between these extreme points is exempt from attacks, and the liability to it may be continued much longer.

The predisposition is also dependent on certain constitutional states, and the character of the hæmorrhage modified accordingly,—the active variety being chiefly found in the sanguineous, the florid and robust,—and the less active, or passive, in the enervated, relaxed and phlegmatic.

More particularly is blood directed to the womb by the habits of sitting or luxurious indolence, or such employments or amusements as spinning or dancing, or equitation, or walking rapidly, in which the lower extremities are exerted, or by excess of venery or the reverse, abstinence from it where the desire is urgent, or by numerous labours or repeated abortions, or by the prevalence of leucorrhœa, and by constipation or frequent purging, with articles operating mainly on the rectum and through it on the uterus,—certain emmenagogues, an undue use of the warm bath, or of foot stoves, &c.

Besides these ordinary agencies, hæmorrhage is sometimes

the consequence of a series of organic lesions of the uterus,—induration or softening of texture, common ulceration, scirrhosity or open cancer, polypi and various tumours,—fungoid, or other morbid growths of diverse sorts. Connected, however, with such states, the effusion, I suspect, proceeds mostly from rupture of vessels, and hence does not strictly appertain to the present inquiry. Yet it may be otherwise, these lesions sometimes operating to the disorder of the capillaries of the mucous surface. This hæmorrhage, I think, is seldom to be traced to cardiac or other remote influences. Nor is it often *vicarious* or *succedaneous* in its character so far as I have observed.

No difficulty can exist in distinguishing the uterine from other hæmorrhages. Menorrhagia is most apt to be confounded with it. An inspection of the discharge will, however, at once remove all doubts, it being in the one pure coagulable blood, and in the other a thin, dark fluid, of a peculiar odour. Between the blood, in some of the less active hæmorrhages, and the menses there is a closer resemblance, and great attention will be required in the discrimination. Embarrassment, tqo, may be experienced in this respect, as relates to the hæmorrhage dependent on those structural derangements of the womb just mentioned, though here the obscurity is cleared away by an examination *per vaginam*.

It seldom happens that there is any immediate danger in the active form of this hæmorrhage, provided it be spontaneous, to whatever extent it proceeds. Death, at least, rarely or perhaps never suddenly ensues from it. Much, however, is to be apprehended in the ulterior consequences where it is frequently repeated or long continued, by the constitutional disturbance and general derangement of health of which it is productive. But it is otherwise in the less active or passive states of the disease, the loss of blood here being sometimes most copious and the effects truly alarming. I have met with some instances and many are reported, where pints of blood have escaped in an inconceivably short time,—and though never within my own observation ending fatally, such events have undoubtedly taken place. Yet it would seem that from no part of the body is excessive hæmorrhage better borne than the uterus, or the preservation of life more frequent, under apparently desperate circumstances.

Commonly the active hæmorrhage is easy of cure. The cases which prove intractable are of long standing, to be found, for the most part, in women somewhat advanced in life, very often about the season of the cessation of the menses, with some organic lesion of the uterus, or of a lymphatic temperament and general bad condition of system.

The rareness of a fatal termination in either state of this affection has prevented the acquisition of any precise knowledge of its anatomical characters. No doubt, however, they are the same as in hæmorrhages of other mucous surfaces, and which have been sufficiently detailed under some preceding heads. The organic lesions, I have said, seldom bear a relation to vital hæmorrhage, and hence need not be again enumerated or more minutely described.

With those who confess the peculiar obscurity in which the pathology of uterine hæmorrhage is involved, I can not unite. To me it is as plain as that of any of its affiliated affections. Lined as the womb is with a mucous membrane, why should it not be subject to hæmorrhage? But the chief difficulty complained of seems to relate to those cases where pure blood periodically escapes instead of real menses, or in which the two fluids are mixed. Every hæmorrhage displays such a tendency occasionally,—and that it should be more strikingly manifested in the uterine, is readily to be conceived from the natural functions of the organ. The uterine vessels, I have said on a former occasion, when in a healthy state, by virtue of their secretory office periodically exercised, convert the blood into a peculiar fluid. Disordered, however, they lose this capacity, and blood is exhaled more or less unchanged. But it is asked whether different sets of vessels are not engaged in these operations? Recurring to what was delivered on the general pathology of hæmorrhage, an explanation of this phenomenon will be acquired. No more of that discussion shall I now recapitulate, than merely the remark, that the secretory vessels of a part may be so differently influenced at the time, that while one portion of them is adequately performing its duty, another shall allow blood to pass through them, little or not at all affected. There is not the slightest necessity to suppose a double set of vessels to solve the problem.

In a well-marked case of the active state of this hæmorrhage

we have to contend with a plethoric, and perhaps an inflammatory condition, local or general. Excepting from the inconvenience of it, I am not aware of any objection to permitting it to continue as an effort of nature, in most instances at least, to get clear of a morbid irritation or redundant blood. Deeming it, however, expedient on any account to interfere, we can have little doubt as to the remedies. To a considerable extent, venesection becomes necessary,—the bowels, when constipated, should be opened by a mild laxative, and the nitrate of potash, with a modicum of tartarized antimony subsequently directed. The latter is undoubtedly among the most suitable of our remedies at this time.

Digitalis has been proposed here, even as a substitute for venesection,—and it will be found most strenuously urged with this view, especially by Currie, Ferriar and Drake. No substitute for it, however, have we in this or in any other instance, of a plethoric or active circulation. Digitalis, in this case, is to be placed on nearly the same footing with some other sedatives. The pulse being without force or volume, though quick and irritated, it may be recurred to, provided the hæmorrhage be not copious, since it is apt to induce a relaxed or patulous state of the vessels, and hence to increase the flow of blood. Nevertheless, under such circumstances or where venesection is no longer admissible, the most appropriate means usually is cupping the lumbar region, or an application of a blister to the same part, or both, in succession.

Certain astringents are next resorted to, and, properly directed, may be serviceable, though I have some doubts of their efficacy. Nothing, however, is better established, than that these articles ought to be preceded by depletion. Let this be omitted or too timidly employed, and these and all other means will prove inefficient and sometimes positively detrimental.

Of the class of astringents, the acetate of lead stands probably first in repute, and is, indeed, represented as sometimes displaying extraordinary powers. Many, as well of Europe as this country, who have used it largely, concur in this estimate of its value. Heberden says, “if ever there was a specific in any disease, it is surely the lead in uterine hæmorrhage.” The late Professor Barton was equally lavish of his commendations of it. My own experience will not allow me to go so far, and I even

suspect that the accounts of its efficacy are great exaggerations. It is prescribed in the dose of two or three grains with a quarter of a grain or less of opium, to be repeated at shorter or longer intervals, according to the emergency.

As the other articles of this description are more employed in the less active state of this hæmorrhage, I shall postpone my animadversions on them till I come to that portion of the subject, and now turn to the consideration of a very different set of medicines. The first which attracts notice is ipecacuanha.

No inconsiderable testimony might be adduced to its powers, which, in my opinion, are superior to those of the acetate of lead. The mode of giving it is in minute doses, with a small portion of opium, so as scarcely to distress the stomach, under an apprehension of exciting vomiting. What would be the effect of this process induced by an emetic, I cannot say from any knowledge of my own in active uterine hæmorrhage. Cases of it, however, I have seen to cease on the coming on of spontaneous vomiting,—and I can discern no objection to the use of emetics, provided there has been previously a reduction of vascular action. But of this again presently.

More effectual than either of these articles is the ergot, according to recent declarations of some practitioners. That it controlled the floodings preceding, and following delivery, had been long known,—and it was presumed that it would here prove still more decisive. Not positively denying its utility, for I have very slight experience with it, I do still think that the analogical reasoning which led to the extension of this application of it, is incorrect. The hæmorrhage in the two cases is produced very differently, and seems to require remedies equally dissimilar,—in the first, by the rupture of vessels, to be compressed by uterine contractions, and in the second by a mere exhalation of blood, which is checked by an alteration in the state of the capillaries. It has been said, I am aware, in defence of its efficacy, that it has the quality of imparting tone to the capillaries, inducing contraction, by which the patulous mouths of the exhalents are closed, and further effusions obviated. But this conjecture is contradicted by facts. Ergot is shown, by the well-conducted experiments of Dr. Charles Byrd, to have no remedial effect except on the *gravid* uterus. Given under other circumstances it appeared to be utterly inert, even in relation to the system of

the female, the womb included. Were it, too, endowed with the power ascribed to it, should it not be displayed in regard to hæmorrhages generally? That in epistaxis, hæmoptysis and hæmatemesis it has none I am persuaded from all my observations. We are told by some that the tincture of ergot answers far better than the powder. The dose is thirty or forty drops, occasionally repeated.

Evidence of a very respectable character might be collected of the utility of opium, and under various circumstances of this hæmorrhage. Yet I cannot help thinking that it has been abused by a too general and indiscriminate application of it. Thus it appears to me, that prescribed in a full dose in the early stage of active hæmorrhage, under ordinary circumstances, its effects would be injurious. We, however, meet with such cases attended by pain, irritation and spasm of the uterus, by which irregular movements, the effusion of blood is excited or kept up. Here, after sufficient bleeding, opium signalizes its utility, acting on a principle too plain to require any explication. Nor am I prepared to limit its application exclusively to this condition. The more I prescribe it, the stronger is my conviction that it exercises a very general power over hæmorrhage, provided adequate depletion has been practised, and which I think it does by its operation on the nervous system, as formerly explained. Commonly, it, or some one of its preparations, is given alone,—but the Dover's powder often answers better,—and in some instances, a union of opium, ipecacuanha and camphor, is still more to be preferred.

The most prominent of the general remedies with which we endeavour to arrest uterine hæmorrhage of the species under review have been mentioned. There are, however, some topical expedients,—among which is an application of cloths wrung out of cold water, or vinegar, or ice itself to the pudendum and belly, or to pour down water from a height in a small stream on the latter.

An advantage may also be gained by injecting into the vagina a solution of alum, sugar of lead, white vitriol or other astringent fluids. The rectum is resorted to by some as a medium of administration of these articles, it being affirmed that they thus act with greater efficacy. Whether it be so, I am unable to state from any trials of my own. Yet where much irritation and spasmodic action of the uterus prevailed, I have sometimes de-

rived great benefit from opiate enemata. More, however, to be trusted than any of the means I have suggested, is plugging up the vagina, so as to allow a coagulum of blood to form,—and the best substance for the purpose is sponge, though tow, flax, cotton or even soft rag may be substituted. This is the tapon of the French.

Connected as this hæmorrhage is, with an active and, perhaps, sometimes an inflammatory condition, it is often circumstanced differently. We have, in the latter cases, proofs of a debilitated and sometimes a vitiated state of the system. The pulse is feeble and quick, the respiration hurried on the slightest exertion, the skin damp and cold, pallid or sallow and doughy, with, in protracted instances, œdema of the lower extremities, and particularly of the feet, in the evening. That, however, which distresses most, is a constant pain in the lumbar region, sometimes acute, though more frequently dull, with a sense of weakness in the back, which may be so great as even to prevent the erect position. Effusions are occasionally very profuse, the blood thin or watery, and inasmuch, from the existing debility, any further expenditure of it must be detrimental, it is to be checked as speedily as possible.

General bleeding here can rarely be practised. But in those instances, where there is much local congestion, though the system may be weak, cupping over the lumbar region is allowable,—and, at all events, dry cupping or a blister, or both, in the same position, may be applied. Excepting the nitrate of potash and tart. antimony, all the other medicines, in the active, are adapted to this hæmorrhage, and especially the topical means before enumerated. There are, moreover, some other articles given internally, and among these is alum. That it has been found useful, it is hard to doubt. The earliest appropriation of it, indeed, was to uterine hæmorrhage, by Van Helmont, who acquired immense fame by the cures effected by it. The dose is from three to five grains, with a portion of opium, to be repeated according to the emergency. Though it is usual to combine it with kino or catechu, no advantage is gained, and it were better to give these articles separately. They are not, however, in any mode of administration, highly appreciated by me. The tincture of rhatany has, perhaps, stronger claims to attention, and the elixir of vitriol is undoubtedly sometimes serviceable. Neither of the gallic acid

nor kreosote, lately so strongly praised, have I any personal experience in this application of them.

It is now proper that I should deliver some account of the use of emetics, and particularly, as the practice is not without claims to originality. This inactive hæmorrhage may be alarming in its immediate tendency,—it is always seriously injurious to health, and often proves intractable to the customary mode of treatment. Embarrassed by a case of the kind, which had resisted the best efforts of some other practitioners, I determined to venture on the experiment with emetics. To this conclusion I was led by the reflection that there is no peculiarity in uterine hæmorrhage not reconcilable to the common principle on which I had conducted the cure of other forms of the disease. It struck me, that by the revulsion of vomiting, distinct from the secondary effects of the process, the flow of blood might be checked, and that in the interval of its recurrences, by occasional repetitions of the remedy, the uterus reinstated in its secretory functions. Emetics, I was also aware, are among the most active and certain of the emmenagogues, by which I mean an immediate power to arouse the energies, or otherwise to reinvest the uterus with the faculty of secretion, when suspended or perverted. Having seen their salutary agency in this respect, as well in amenorrhœa as fluor albus, I indulged the hope that if in these cases they can revive a natural action, or rectify a depraved one, so they might be serviceable in the same way in hæmorrhage.

The case to which I have referred occurred at the close of 1827. It was that of a lady in the prime of life, from a distant part of the country, who came to consult me. Her appearance was sickly, and she told me that from her marriage, a year and a half before, she had been subject to hæmorrhage, at first inconsiderable and monthly, progressively, however, increasing in quantity, and renewed at shorter intervals, till it had become so copious on some occasions as to endanger her existence. This distressing situation was greatly aggravated by her sterility.

The ordinary routine of remedies having been ineffectually exhausted, I suggested a trial of a course of treatment in conformity to the views just presented. With this advice she returned home, promising strictly to adhere to it. Two months afterwards I received a letter from her, in which she informed

me that on her journey she had a comparatively slight hæmorrhage,—though, under an apprehension of its increasing, recourse was had to an emetic, which promptly suppressed it ;—that, by this favourable result fresh confidence was inspired in the proposed practice, and she had accordingly taken six emetics at the intervals of eight days each, when regular menstruation returning, her general health was sensibly improved. Encouraged by this communication, I have since pursued the practice to some extent, and though not uniformly successful, it has proved sufficiently so to claim, in my opinion, great respect.

With two additional examples of its efficacy I must be satisfied. Not long before his death, I was urgently called by Dr. Physick to meet him in a case of a lady, at one of our hotels, who was suffering from uterine hæmorrhage to a very alarming extent. As he had experienced great difficulty in restraining it, and she had become somewhat exhausted, an emetic was directed, which proved promptly successful. The next day, on inquiring more thoroughly into her situation, I ascertained that her general health was much impaired by recurrences of this hæmorrhage periodically, in place of menstruation, which had long been suppressed. On her leaving us soon afterwards, we strenuously recommended a trial of a course of emetics as in the preceding case, with what advantage, however, I do not know, never having heard from her.

Three years ago I was consulted by a lady who came hither for the purpose, from the interior of the State of New York, by whom I was informed, that in consequence of the repetitions of this hæmorrhage, her health was inconceivably wretched, and her aspect fully justified the statement. Much having been previously done for her without avail, I proposed the emetic practice, and had the happiness to learn from her that she had entirely recovered, and had since given birth to a fine robust child.

It were easy to adduce further cases of a similar kind, though perhaps not so striking.

To excite vomiting I have uniformly employed ipecacuanha, and perhaps no other article is so well adapted to the case. It affords me pleasure to find, from a late publication, that the emetic practice, as well as the preference of this article, is fully sanctioned by two very eminent practitioners of Europe. Coffin, of Paris, declares this as the result of ample experience,—and which

is abundantly confirmed by Osborne, of Dublin, who states that a scruple of ipecacuanha, taken in the evening, and followed by an acidulated saline purgative in the morning, stops the discharge very speedily, and when it returns, the emetic repeated once or twice, never fails to complete the cure. Tartarized antimony had no such effect. As to the applicability of the practice, he perceived no difference, whether the hæmorrhage was decidedly active or the reverse, it being alike successful.

Checked in any manner, the next consideration is to prevent the recurrence of the hæmorrhage, or, in other words, to effect a thorough cure. Before commencing the treatment, the pathological condition on which this disposition to effusion depends, must be ascertained. Either of a phlogistic or active congestive nature, the loss of blood, generally or locally, from time to time, with the other means of reduction, including low diet, are, perhaps, only demanded. But in an opposite state, or one of enervation or relaxation, an essentially different course becomes proper.

Of the utility of emetics, as well to arrest the flow as to obviate its recurrence, I have already spoken. Cathartics which act on the lower portion of the bowels and indirectly on the uterus, have also been employed. The aloetic preparations are of this description, and among the very best of them are the *hiera picra* and *elixir proprietatis*. These articles are designed to operate not so much as evacuants, as by an impression on the vessels of the uterus, supposed to be promotive of the menstrual function. Governed by the same principle, emmenagogues of a more decisive character have been directed. But whatever may be the merit of these, of which I am exceedingly distrustful, the tonics are less equivocal and more commonly employed. Great reliance was once placed on the Peruvian bark and its ordinary preparations, now superseded by the sulphate of quinine.

But, above all, should our trust be reposed in the chalybeates. Excellent in every variety of this enfeebled state of the system, it is when exsanguineous or cachectic that they are best adapted. The phosphate of iron is the most valuable alone, or with the quinine, though the muriated tincture, the subcarbonate, the sulphate, the tartrate, the prussiate, hydriodate, the lactate and citrate, are all in repute. To aid this plan of corroboration, nutritious, though not a heating or stimulating diet, may be sug-

gested, with the use of the cold bath, moderate exercise, and whatever else is calculated to renew or improve health.

Not, however, succeeding, some radical derangement of the uterus is to be suspected, and without much investigation of the nature of the lesion, mercury has been directed with a view to its reparation. Cautiously administered, there are states in which it might be serviceable, as those in which it is beneficially resorted to in the lesions of other secretory organs. Even under the superposition of such uterine depravations, an indiscriminate application of it could not, however, fail of producing infinite mischief. With these very states there is, in many instances, a pervading bad habit of body, both of the solids and blood, the latter especially being thin and impoverished by the loss of its fibrin and red globules—and here, mercury would prove the most pernicious of articles! Employed at all, it must be reserved for cases where the integrity of the constitution has not materially suffered.

In the management of this hæmorrhage, the principal design should be to replace the system in a healthy state, on the accomplishment of which, menstruation usually returns, and with it, the hæmorrhagic tendency ceases. Never ought it be forgotten, that the latter, existing during the period of life when the former should be performed, it is seldom completely overcome, except by the restoration of the natural function.

Nor as a prophylactic of the utmost importance, must it escape notice, that on the hæmorrhage observing the law of periodicity with any degree of exactness, reverting, for instance, monthly, or at any stated interval, it may often be averted, by enjoining for a few days, in anticipation of an attack, a state of entire rest,—and where local uneasiness, or other signs of a congestive or phlogistic state prevails, by the loss of blood, generally or locally, a reduction of diet, and, perhaps, occasionally an opiate. Examples, indeed, occur in which the tendency to effusion is so continued, that the recumbent position is absolutely required for weeks or months together, to prevent its reappearance.

It remains to make a few remarks on a peculiar state of the disease. An irregularity in the discharges of the uterus may be expected to a greater or less extent at the season of the cessation of the menses. The secretory office of this organ being about to terminate, it is imperfectly performed, and, consequently, we have some abnormal secretion, or oftener pure blood,

in the place of the catamenia, or a mixture of these fluids, and which is thrown out with no uniformity as to time or quantity. It happens, too, at this, or a later period, that we meet with cases where there is a small, though nearly constant oozing of blood, quaintly denominated by the late Professor Rush "a hemoptoe of the uterus." It may be suspected, under such circumstances, particularly the latter, that there is something wrong in the condition of the womb, either chronic congestion, or phlogosis, and which being neglected leads to the formation of some more formidable lesion.

Cases of this nature are to be usually recognized by a sense of heat and pain in the uterus, the latter extending to the lumbar region and lower extremities,—by the smallness of the discharge, —and, in a more advanced stage, by an aggravation of the preceding symptoms, with depraved and offensive discharges. Doubts, however, existing, these may be removed by an examination *per vaginam*, when, in the commencement, the os tincæ, and, perhaps, the neck of the womb will usually be found thickened, betraying increased sensibility to the touch, and subsequently still more disease. Desirous of absolute certainty as to the nature and degree of the affection, this is attainable by the introduction of a *speculum*, lately contrived for the purpose, into the vagina, which brings the parts distinctly into view.

It is, however, with reluctance that I even allude to these last resources. Designed only for the extremest emergencies, they have become of too common application among some regular practitioners, and are now actually one of the most profitable expedients of the vilest of the quacks. The extent is hardly to be credited,—though undoubtedly true, to which these charlatans are patronized in this and other respects,—wholly revolting, as might be supposed, to female sensibility. There are now men in all our large cities, low, vulgar and illiterate, who, professing through the medium of the speculum, or some equally indelicate mode, to determine and cure with certainty the physical sufferings of the sex, receiving a degree of employment utterly inexplicable,—prone as we know the human mind is to every sort of illusion and imposture.

The mere suppression of the sanguineous discharge in the state just noticed, is, however, a subordinate consideration. Not excessive, it is even salutary and must not be checked. The

great object is to arrest the progress, or entirely relieve that condition from which it emanates. To this end, the most approved means are general and topical bleedings. The latter are usually made from the groins and vulva, though it is now sometimes effected by leeches to the uterus itself, as more effectual, applied by means of the speculum mentioned, which, however, I think questionable. As well on the general principle, that it is preferable to draw blood from the vicinity than directly from the affected part, I have actually seen instances of uterine irritation by the bites of the leeches. Further, the treatment consists in an alterative use of mercury, low diet, principally of milk, with an avoidance of all exasperating causes.

In a later stage, when scirrhus and other serious organic degenerations have taken place, our chief reliance has been on arsenic and the free exhibition of the narcotics, hemlock, stramonium, henbane, opium, &c. Little is to be anticipated from these remedies,—and such cases are now usually resigned to the resources of surgery, from which, however, I apprehend scarcely more is derived. Notwithstanding all the vauntedings of Lisfranc and others, of the extraordinary success of their operations on the uterus, for the removal of diseased portions of it, great reason exists to distrust the integrity of these statements. As regards those of Lisfranc especially, there has been lately published the solemn declaration of the resident surgeon of the hospital in which they occurred, that nearly the whole of the cases reported as cured ended fatally. We have here a very striking illustration of the common and highly censurable conduct of certain surgeons, who, to acquire the *eclat* of a daring operation, proclaim at once the performance of it, and conceal the ultimate result, however ineffectual or disastrous it may be. It is a custom, to say the least of it, far “more honourable in the breach, than the observance,” and from which, every one who is sensible of what is due to himself, or of the obligations to the profession, will turn with loathing and disgust.

HÆMORRHOIS, OR HÆMORRHOIDS.

These terms, strictly meaning a flow of blood, are now applied exclusively to such as come from the vessels of the rectum. By

the phrase proposed to be substituted for them, *Hæmorrhæa Vasorum Hæmorrhoidalium*, the affection is clearly expressed,—though with too little conciseness for familiar use, and hence, probably, the old titles, inadequate as they are, will not be superseded by it. This hæmorrhage, in common language, is denominated piles,—the plural of pile, to coacervate or heap on,—the tumours incident to it exhibiting such an appearance in some instances. Generally, indeed, it is to be met with in the form of tumours, which are designated according to their position, external or internal to the anus, and these may be with or without a discharge of blood, the first called bleeding, the second blind piles. But hæmorrhage sometimes takes place independently of any such formations, and it is the effusion under whatever circumstances existing, that can now properly claim my attention. Cases complicated with tumours, are, from the force of prescription, still surrendered to surgery.

An attack of active hæmorrhoidis is usually preceded, and may be attended, for a time, by a sense of weight and fulness in the epigastrium, belly and loins,—constipation, tormina and tenesmus,—scanty and high-coloured urine, sometimes strangury or entire suppression of the discharge,—uneasiness in the perineum, florid countenance, giddiness or headache, nausea or vomiting, and, in some rare instances, by inordinate venereal impulses, with itching of the glans penis, slight swelling of the prepuce and testicles,—occasional erections,—a blennorrhagic discharge from the urethra, and seminal emissions.*

Cases, too, occur, introduced by chills or horripilations, followed by fever,—and almost uniformly the circulation is more or less disturbed, either by an increase of force and acceleration, or by becoming fuller and more sluggish. Tumours having formed, much aggravation of distress ensues. They may be exquisitely tender, with a burning sensation, or throbbing, pulsatory pain in them,—especially when forced down and incarcerated by the sphincter ani. Going to stool, the agony is so extreme as scarcely to be endured,—occasionally giving rise to such intensity of inflammation as to produce sloughing,—though oftener to a sort of muco-purulent secretion. By an effusion of blood, great and immediate relief is commonly afforded to these

* Richter.

affections. Even without this occurrence, the phlogosis, the tension and pain slowly abate,—the tumours correspondently diminish, and may entirely disappear,—mostly, however, to revert again at some uncertain period.

Consequent on repetitions of attacks, changes are induced in their structure, which render them permanent, they then becoming, sometimes, a perpetual source of irritation, and when exacerbated, of suffering. Disorder of system may ultimately ensue whether there be hæmorrhage or not,—though aggravated by excessive losses of blood,—manifested by dyspepsia or vertigo, confusion of mind, sometimes excruciating neuralgia of the head, panting and oppressed respiration, fetid breath, palpitations of the heart,—an intermittent or otherwise irregular pulse, muscular weakness,—pallor so great as to resemble white wax, with soft, doughy integuments, and sometimes dropsy. These are the most prominent of the general effects to which might be subjoined a variety of local affections that sometimes complicate the case and enhance the difficulty of its treatment. But though such are the ordinary results of hæmorrhoids, it very often is infinitely milder in its earlier and subsequent stages, and, indeed, I have known it to endure for years, with little or no suffering, locally or generally.

Looking to the remote or predisponent causes of the disease, it will be found that the period of life has considerable influence in this respect. Belonging to every age, except, perhaps, that of infancy,* it is of more frequent occurrence somewhat beyond the meridian of existence, and in the plethoric and robust,—incident, however, to an opposite state, or the enfeebled, attenuated or depraved.

Distinct from this, there is, at all times, a peculiar susceptibility to it from the conformation of parts.

The rectum is one of the most dependent portions of the body, and its veins being lax, without valves, and little sustained by the loose, surrounding cellular membrane, readily become surcharged with blood, which leads to this result.

Many families are so liable to hæmorrhoids, that it has been supposed to be hereditary. The temperaments most favourable

* I once saw it in a boy four years old, and it has been observed by others in children still younger.

to its production are the sanguineous, or rather, perhaps, the sanguino-bilious or melancholic. Not at all, however, confined to this, I have seen it not unfrequently in every one of the simple or combined of these original constitutional conditions.

That males are more affected with it than females was the doctrine of Stahl and his disciples, who paid great attention to hæmorrhage. Cullen and other high authorities, however, entertained an opposite opinion, in which I am inclined to concur. Certain it is, that women are exposed to three peculiar causes, amenorrhœa, pregnancy and parturition,—and probably, also, have greater delicacy of vessels. Yet while the menstrual function is duly performed, it exerting a counter-agency, they, perhaps, are comparatively exempt.

Climate and seasons seem to dispose to its production. It is far more prevalent in the hot, damp and *miasmatic*, than in the temperate, or cold and dry. Examples we have where, under the former circumstances, it became so general as to have some claims to be an epidemic, and surely, there is more of it in the extreme southern than the northern portions of our country.

Further may be stated all those causes producing local determination or fulness in the vessels of the rectum, among which is disorder of the chylopoietic viscera, and hence the greater proclivity of the sedentary, the voluptuous and debauched, to the affection. More immediately tending to the event is whatever irritates the part, as ascarides in the rectum, or lodgment there of indurated faeces, or purging with the aloetic preparations. Costiveness, especially, is represented to be so influential in this respect, that it is assigned as the main reason of the wider prevalence of it in the higher classes of society, where those habits predominate, to which I have just alluded. In imputing hæmorrhoids to the aloetics, I am led by authority, and not my own experience. No effect of the kind have I witnessed, and am, indeed, inclined to suspect that the ascription of it to those purgatives has arisen from their being so constantly resorted to in constipation, the real occasion of the hæmorrhoidal lesion.

Not the least curious fact belonging to the subject is the proneness of hæmorrhoids occasionally to observe the law of periodicity. I have seen it return with regularity, at stated intervals, in men, though oftener in women, sometimes in the latter alternating with the menses, and particularly where the secretory function of the

uterus has not been well established. Examples, too, are not uncommon, less equivocally vicarious, as well in relation to the catamenia as the real hæmorrhages. But while hæmorrhoids is thus induced, it is, perhaps, scarcely less so by certain morbid conditions of the abdominal viscera, as specified on some preceding occasions, with an explanation of their mode of operation in effecting hæmorrhage.

To distinguish this from all other effusions of blood is so easy, on account of its being, for the most part, exposed to view, that I shall forbear to point out minutely its discriminating signs. Chiefly it resembles some of the discharges of blood from an upper portion of the alimentary canal, or, as may be, those of the liver or spleen. But the symptoms are altogether so different that any mistake may be avoided.

Enough will it be to state that, independently of the general characteristics of hæmorrhoids, the blood in it is fluid and florid,—sometimes accompanying, though never mixed with the faecal contents of the bowels. In the other instances it is usually blended with mucus or other extraneous matters, or is dark, grumous, granulated or dissolved. Even where the hæmorrhage is inward, its sources can generally be detected by the patient forcibly pressing down as at stool, and especially under the operation of a purgative.

More apt, perhaps, are piles to be confounded with other tumours, and, above all, with prolapsus of the rectum. Yet there is this obvious difference in the two cases,—that in the former, the mucous membrane covering the tumour, comes down alone with them,—whereas, in the latter, an entire portion of the intestine protrudes.

It happens, too, that an internal haemorrhoid suppurating and continuing to discharge pus, the notion of fistula in ano arises. But here any doubt may be at once cleared up by a careful examination. With greater facility are those excrescences which sometimes appear within or around the verge of the anus, distinguished from genuine piles.

Not uncommon is the error of misapprehending lesions of the prostate gland and strictures of the rectum for inward piles, of which I have known several instances. But of all blunders of the kind, the most serious ever witnessed by me remains to be mentioned. Either from pressure by a mass of dilated vessels

on the neck of the bladder, or from sympathetic irritation merely, there is occasionally extreme difficulty of making water, or a total suppression of it, leading to a conviction of the existence of a urethral stricture. Two most distinguished personages, whom I saw some years ago with the late Professor Physick, were speedily relieved by the extirpation of inward piles, after excruciating sufferings for several months, in vain attempts by other practitioners to remove strictures, under which they were supposed to labour. These mistakes are less excusable, since they may be prevented by proper explorations of the parts.

Existing with integrity of constitution, and of the active kind, little is to be apprehended from hæmorrhoids. Mostly, indeed, critical and salutary, it is seldom of undue profusion, and proves readily manageable. Different, however, is it when the product of a sluggish abdominal circulation, with much general weakness and pravity of system. The hæmorrhage here is sometimes enormously copious, and immediately alarming in its menaces.

Lieutaud mentions a person who bled six quarts in two days, and by Panaoli we are told of another who voided a pint of blood daily, for two years.

Copernicus and Arius, the heretic, are said to have died in this way. The death of the latter, however, is ascribed to a very different cause by Gibbon, the historian, who, from the accuracy with which he examined most subjects, is probably correct. An instance is related, by Hoffman, of a woman with amenorrhœa, who evacuated upwards of twenty pounds in less than twenty-four hours,—and Borelli alludes to a case of a man where ten pounds were lost at one time.

These accounts would seem the more exaggerated, were there not well-authenticated statements of prodigious hæmorrhages of this nature. Calvert, a late writer, has presented us with the history of a woman, "who purged three chamber pots full of bloody fluids in less than two hours,—and of another, from whom escaped a pint of pure blood daily, for near a fortnight." Not improbably, in some of these cases, there was mælena,—the blood proceeding from congested liver or spleen,—these organs being very often in such a state in the hæmorrhoidal affections. Yet I have seen several instances where the effusion was excessive and exceedingly intractable, evidently from the rectal vessels, among which, that of a gentleman attended by the late Professor

Physick and myself, who informed us, that he must, on an average, have lost half a pint of pure blood daily, for eighteen months, and on several occasions, the amount could not have been less than two quarts.

Contemplating the causes of hæmorrhoids, very little may suffice to render intelligible its anatomical characters. These are varied according to the nature or seat of the affection. There may be detected merely a turgency of the veins, which collect the blood from about the verge of the anus, as well without as within the sphincter, of an arborescent aspect,—though sometimes one or more of these vessels are so distended as to appear varicose, or knotty, or irregularly protuberant.

In some chronic cases the veins present this state for several inches up the intestinal tube, even as far as the colon, as large as a quill, and Morgagni saw a single one of the size of his thumb:—on other occasions, by extreme dilatation at a point, a cyst-like formation takes place of considerable dimensions. The veins, too, thus enlarged, their ramifications, by interweaving, are found accumulated in a mass covered by the lining tissues of the rectum, exhibiting a globular shape, situated within, or extruded out of the anus, and sometimes of prodigious magnitude.

Commonly, however, more definite tumours are exhibited and of diverse conditions, soft, compressible, or of several gradations of firmness and consistency. Cut into, some are found to contain either fluid or coagulated blood, or lymph—are cellulated or dense, or more solid, or, as now and then occurs, are empty sacs, with sometimes an aperture. They have little vascularity, are often of a somewhat pyriform shape and attached by a neck.

Tumours of another character are also exhibited, which have the appearance as if formed out of an erectile tissue. Generally, three or four co-exist in a case, one being larger and more prominent than the rest. They are of a florid, or oftener of a purplish hue, with a very vascular surface, soft, spongy feel, and bleed profusely. When small, they are usually found retracted within the gut, and otherwise, extruded, sometimes in considerable masses. Dissection shows, I think, that they consist of a portion of the mucous tissue, separated, as it were, from its connections, is pushed down, and by the grip of the sphincter becomes of a tumoroid nature.

Moreover, we meet occasionally with tumours situated exter-

nally—when recent, soft, and covered with mucous membrane, and in the chronic state, hard, and with a thick round margin, the whole invested with skin, this conversion of the tegument being effected by exposure to the atmosphere. Not inflamed, they are of a brownish hue, having sometimes their surface broken into fissures, oozing forth ichorous or impure purulent matter of some kind. They seem to be composed essentially of cellular membrane, into which fibrin has been extravasated, and are so destitute of vascularity, that they scarcely bleed.

Of these several kinds of tumours, by far the most common, I think, are those induced by a protrusion of mucous membrane. But a very different opinion seems to be entertained by some of the eminent surgeons of London, including Bell, Home and Brodie, all of whom adhere to the notion of the “olden time,” of their origin in varicose veins. Brodie has recently told us that “those ultimate changes which take place in piles, are similar to what happens in varicose veins of the legs. The veins, at first, simply dilated, become inflamed when lymph is deposited in the surrounding cellular membrane, producing a great mass of induration, in which the blood-vessels are, as it were, imbedded. Exactly so is it with the veins of the anus and rectum. They, at first, become merely dilated, repeated attacks of inflammation cause extravasations of lymph into the adjacent cellular tissue, and then the pile appears like a solid tumour,—in the centre of which, however, is still to be found the dilated vein from whence the disease originated.” It is with unfeigned diffidence that I dissent from such high authority, and should not do it, were I not sustained by very numerous writers entitled to equal confidence, among whom of the continent are Le Dran, Richter, De Montagre, &c.—and of the British Isles, Abernethy, Calvert, Colles and Kirby, &c. No one, probably, has investigated the anatomical structure of hæmorrhoidal tumours with more care, or to a greater extent than the latter,—and he declares that he never met with even a solitary instance of varicose tumour. These are the local lesions properly appertaining to the hæmorrhoidal condition, any one of which may exist separately, or two or more, or the whole together. Combined with them there are, also, in some instances, what may be deemed extraneous or accidental productions, as prolapsus, stricture, abscess or fistula, ulcerations, &c.

Extending our researches into the cavity of the abdomen, more

or less disorder of its viscera will sometimes be revealed. An infarction of the liver or spleen is most common—though diverse lesions are sometimes discoverable in the primæ viæ, among which is turgescency of vessels to the varicose condition, in any one part, even in the stomach itself.

From the preceding exposition it is deducible that these hæmorrhages may be mostly traced to one common source, an obstruction in the return of blood to, or through the hæmorrhoidal, the inferior mesenteric veins, or the branches of the vena portarum. The effect of this is to accumulate the fluid in those veins more immediately concerned in the parts implicated, and when the engorgement is excessive, a rupture of a vessel may possibly take place, followed by a hæmorrhage to a greater or less degree, or by an extravasation of blood or lymph into the subjacent cellular tissue, forming the varieties of tumours incident to the disease, or what more commonly occurs, the gorged state of the veins fills the capillary arteries, and the effusion, or the other consequences described, are produced in this mode.

Not very often does any blood escape from the tumours themselves, they serving merely to irritate the neighbouring capillaries to the hæmorrhagic effort. The only exception, perhaps, and this can be hardly considered as such, since it is not a tumour in the sense in which the term is here used, is in that sort of swelling or tumoroid appearance formerly described as arising from a congeries of enlarged veins. No doubt these do bleed, and very copiously too, of which we have the most conclusive proof in a remarkable instance, reported by Sir James Earle, of the kind, measuring nine inches in circumference, out of the surface of which blood emanated most alarmingly.

Not unknown to me is it, that till lately, an opinion almost universally prevailed that the hæmorrhage was occasioned either by rhesis or diapedesis, rupture of the vessel, or transudation through its texture. Excepting, however, the instance already stated of varicose veins, where probably the effusion is sometimes assignable to rupture, though a very rare event, recent and more accurate inquiries have shown the fallacy of each of the former hypotheses, and that it is owing to anastomosis, or effusion from the exhalents. Calvert, a respectable writer previously cited, affirms the fact, and Montagre, perhaps a higher authority, in accounting for this hæmorrhage, declares that, “on a sanguine-

ous determination to the rectum, under certain circumstances, a flow of blood ensues by a kind of exhalation from the mucous membrane, without any lesion or erosion of the tissue whatever."

Nor is the equally received notion more correct, that the hæmorrhage proceeds from the veins in any other manner. Dependent on a varicose state of these vessels, such may occasionally be the fact. But otherwise, it undoubtedly comes from the arteries, in absolute demonstration of which, florid blood has been seen oozing out of the arterial extremities on the surface of the rectum. This is positively asserted by Calvert and Montagre, who are well entitled, from their accurate observations, to be heard authoritatively on the subject.

Hæmorrhoids, when active, seldom requires any treatment, subsiding spontaneously on the removal of the state, for the cure of which it is designed by nature, and where it does not, the plan is simply depletory and antiphlogistic. General or local blood-letting over the lumbar region,—perhaps a blister in the same position, gentle evacuation of the bowels, so as to obviate costiveness, and the nitrate of potash, with rest in the recumbent posture, and low diet, constitute the best means of fulfilling the indication. But it is very different in regard to the other form of the affection. There is in this case, a condition much the reverse of the preceding one. The circulation is languid, with general debility, and the indications of pravity of system. By a copious discharge at once, or very frequent repetition of it in smaller quantities, an almost exsanguineous state takes place, attended by frightful exhaustion and general disorder of health.

It is plain, that the object here is to check the effusion as quickly as possible, and the best means of doing it is by injections of the styptics and astringents, or of intensely cold water, or by filling up the rectum with pulverulent matters, or by compression by the sponge tent, with rest in bed, the breech considerably elevated. Not much advantage is derived from the internal exhibition of the acetate of lead, or similar articles in which confidence is placed in other hæmorrhages. Lately, the ergot has been proposed, I presume merely from analogy, which I am sure would prove useless. Dry cupping and a blister to the lumbar region might be proper. That an emetic would be so, I cannot pretend to say from any experience, though, on general

principles it promises so well, that I should certainly venture on it in an emergency.

These means being unavailing, the case must be resigned to the resources of surgery, consisting mainly of an application of ligatures, or of the actual or potential cautery to the bleeding vessels.

Notwithstanding the subject does not belong to me, I cannot forbear to throw out a few suggestions for the management of hæmorrhoidal tumours.

Diversified as these are, in any instance where the circulation is full or active, or there is local inflammation, we have recourse to venesection, and to obviate constipation, to a gentle evacuant of the bowels. Let it be mentioned here, as a practical precept of some value, that if the patient is obliged to sit up to attend to business, the purge should invariably be taken at night, as by the recumbent position much of the distress from the operation is prevented. Topical measures may also be employed for the purpose of allaying the pain and swelling, and among these, leeches would seem to be well adapted. It has, however, been objected to them, that they increase by a fluxionary movement, the determination of blood to the tumours, and more directly aggravate the phlogosis by their bites. This is true when they are applied to the tumours themselves, and equally holds with regard to all other analogous cases. Even ordinary phlegmons are exasperated by such practice. It never fails scarcely so to heighten the inflammation of a boil or bubo, as to hurry on suppuration: whereas, if the leeches are put on the surrounding parts, they, by acting revulsively, produce directly an opposite effect, or abate or completely resolve the swelling,—and such is the course which ought to be pursued in regard to hæmorrhoids. Yet not as much is gained from them in the latter application as might be expected, and hence they are nearly abandoned by our best practitioners.

We are told that relief is speedily afforded by puncturing these tumours. As the circulation is maintained with the varicose species, it is not prudent in them to do it, from the danger of hæmorrhage. Calvert relates a case which came under his own observation, “where the individual bled to death from puncturing some tumours formed by a varicose state of the hæmorrhoidal veins.” Though such a result must have been owing to

utter negligence, or a disreputable want of discrimination and skill, it were well, perhaps, to avoid the operation, from the possible occurrence of such a hæmorrhage as to require the application of means of suppression of an inconvenient or painful description.

In the spongy tumours, scarifications, and even deep incisions into them, are said to have been practised with advantage. Merely to puncture them, however, were useless, as the fluid is so enclosed in the cellular tissue, that it is not discharged, and in chronic cases, there is, indeed, none at all.

As palliatives, the following applications may be tried.

1st. The steam of warm water, by sitting over a bidet.

2d. Lotions of lead water and laudanum, or of diluted vinegar.

3d. Embrocations with a soft liniment, or pure lard, to which are added Goulard's extract and laudanum, or with the liniment or the carbonate of lead, or with the weak blue mercurial ointment or that of the narrow leaf dock, or of stramonium, or the mullen. The latter, especially, is truly a lenitive.

4th. The application of the pulp of gourds, or of a rotten apple or lemon, or a cataplasm of camomile or elder flowers, or poppy heads, and especially a saturnine poultice with laudanum, which last I have found, on the whole, most serviceable.

5th. An anodyne injection, or suppository of opium, where the use of these means is not very painful, may be tried, and Montagre speaks highly of enemata of cold water. But the administration of these and other injections is generally resisted in this exacerbated state of the affection, and under such circumstances, where the tumours are protruded and highly inflamed, pulverized ice, enclosed in a bladder, may be applied to them occasionally, not being permitted to remain on long at any one time.

Delicately touching the tumours with lunar caustic is declared to be the most effectual of all remedies, it at once allaying sensibility and assuaging pain, of which I know nothing myself. Burnt alum, I have long been aware, has this effect on inflamed tonsils, and from analogy, I am disposed to believe in the report regarding the former application. Rest and elevation of the breech afford considerable relief in this state of the tumour, though much more is attained by returning it, so as to extricate it from the grip of the sphincter ani, by which it is incarcerated, and should always be attempted.

Having overcome the activity of inflammation, we may next exhibit what is called Ward's paste, a nostrum of great repute, very strongly recommended by the English surgeons, particularly Cooper and Brodie. It is prepared as follows.*

In what mode this strange compound operates is not very intelligible. It is said, from its indigestibility, to pass down to the rectum, and to act locally, in confirmation of which notion, we learn that when thus directly applied, though excessively painful, it proves ultimately very beneficial. But of this explanation I am entirely distrustful.

There are some other articles now to be mentioned of a similar character, and, probably, of equal efficacy, the modus operandi of which can be on no such principle. Among these are cubebs, and I have used the balsam copaiva with success. Even the spirit of turpentine, heating as it may seem, and hence contraindicated, was a favourite remedy with the late Professor Kuhn, and pills of tar or pitch I find to be recommended. As most of these articles do good in moderate gonorrhœa or gleet, or other similar affections of the mucous surfaces, so I presume they do in the present case, by allaying, or rather counteracting irritation.

The local means, in this state of the hæmorrhoidal tumours, are the gall and tar ointments, or that made of black hellebore, in the proportion of a drachm to an ounce of lard. This I have not tried, for though represented as very effectual, it is confessed to be severely painful. Compression is also practised, when the tumours are low down and little sensible, by a conical tent kept in by a bandage, and when high up, by the rectum bougie, or as a substitute, a piece of wax candle. It is an interesting fact, that though violent or continued riding on horseback is a common cause of this affection, gentle equitation, when it exists in a partially subdued state, has a contrary effect, sometimes even dispersing the tumours.

No great deal, however, is to be expected from any of these

* R.

Piper. Niger.

Rad. Elicap. $\frac{aa}{3}$ viij.

Sem. Fœnicul. $\frac{3}{xxiv}$.

Mel. et Sacch. $\frac{aa}{lbj}$.

Misce in mortar. et ft. Electuar.

The dose is a piece of the size of a nutmeg, twice a day.

expedients, according to my experience. Most of the chronic cases of the disease are kept up by great disorder of the system, particularly of the abdominal viscera, and the only practice from which any uniform success can be anticipated, must be dictated by a careful determination of the precise pathological condition. Without this prerequisite it is utterly impossible so to adjust the remedies as to attain any efficient operation from them, and with it, cures are very often accomplished. More of this presently.

Nevertheless, defeated in our design, and should the tumours prove exceedingly inconvenient or detrimental, it will be best at once to extirpate them by a surgical operation, the reluctance to submit to which has probably been increased, in part, by the unnecessarily tedious and often agonizing manner in which it is performed by ligature. No operation is more excruciating, or where the sufferings are protracted to so lengthened a period. Nor is it always exempt from danger. Examples of death are reported from excessive nervous irritation,—from tetanus,—from the intensity and diffusion of inflammation to other parts,—and from the violence of secondary fever, not unfrequently arising from phlebitis. It is wonderful, indeed, that such catastrophes have not oftener happened,—for no demon of wickedness ever devised or practised greater torture than is here sometimes inflicted. Clipping off the tumours, on the contrary, by scissors, the pain is limited to a moment only, and the dread of hæmorrhage, hitherto serving to deter from this mode, has been greatly exaggerated. Excepting in the varicose tumour, any extent of bleeding cannot possibly ensue, and as to it, not much is to be apprehended, since it would probably be checked by retraction of the vessel, and at all events it may be artificially controlled.

Granting the very worst, I still suspect that comparing the instances of disastrous results of the two operations, those from excision would not be found more numerous, even in this application of it. Excluding, however, the varicose cases, and which are readily to be discriminated, for the most part, its general propriety will scarcely be affected, owing to the extreme rarity of their occurrence. Determining, however, to adopt the other course, the wire is much preferable to the string ligature, it being more prompt, less painful, particularly when the skin is not embraced,—though bad enough! Nevertheless, since there is great difference of opinion among the regular surgeons on this subject,

and, perhaps, a preponderance of authority against the safety of excision, except under special circumstances, it may be right to state what was the practice of the late Professor Physick, so cautious, so wise and so experienced! External piles, covered by skin, he uniformly cut off by scissors, and the internal, coated with mucous membrane, when of any size, removed by the wire ligature, introduced by himself in place of the string heretofore adopted. The practice he thus varied, from the ligature, in the first case, giving great pain, sometimes followed by inflammation and other evil consequences, and excision he deemed entirely safe, and without these objections. But in regard to the second case, the suffering being comparatively slight, and the hæmorrhage sometimes alarmingly copious and difficult to restrain,—having even proved fatal, according to testimony on which he relied, he thought that excision should be avoided, with the exception just stated, and always employed the other mode of procedure. But who shall decide when surgeons disagree? My friend, Dr. Harris, of equal judgment, and very wide experience, on the contrary, invariably practises excision, and has never met with, in his numerous operations, any of the objections so strenuously urged against this plan.

It may be asked, is there no tendency in this disease to a natural cure? As to the acute states of it, such an event very often happens, as I have previously said, and with very little difficulty. There are, too, other modes in which it occasionally takes place. The blood or other fluid contents of the pile may be absorbed and the cavity obliterated, or the tumour suppurates and discharges, and a cure follows pretty much in the same manner. This result is chiefly incident to the external affection. Cases, however, have been met with where large masses of internal tumours being protruded and firmly grasped by the sphincter ani, strangulation ensued, leading to mortification, and the sloughing of the whole away, to the permanent eradication of the disease. It is somewhere related that the celebrated Horne Tooke, who suffered from piles many years, was finally relieved by this process, and when utterly despaired of by his medical attendants.

In returning again to the more immediate consideration of the hæmorrhoidal flux, some of my remarks will refer equally to the other form of the disease. Little would be accomplished in

many instances were that condition permitted to remain which predisposes to or excites an attack. Not to dwell on this point, rendered unnecessary by the instructions delivered under some preceding heads essentially similar, I shall be content to observe, in the first place, that constipation, or the reverse, active purging, should be guarded against, the food and drinks moderate in quantity, and not at all stimulating, and the habits of indolence overcome, to which may be added cold ablutions daily of the parts. Being persuaded, however, of an obstructed or other depraved state of the abdominal viscera, an alterative course of mercury usually becomes proper, and when the case is of a vicarious nature, proceeding, for example, from suppression of the catamenia, endeavours are to be directed to the restoration of the function. But, as in other hæmorrhages, extreme weakness, with tenuity of blood, sometimes exists, leading to the presumption that the recurrence of the discharge is owing to those conditions. The martial preparations are here the best remedies, and great confidence is reposed by some practitioners in moderate purging with aloes, which, though held to be pernicious in the excited condition of the disease, is represented as acting otherwise when such feebleness and laxity prevail. But such a course I cannot advise.

Notwithstanding all that has been said, it is not easily to be conceived how infinite is the relief from the appearance of the hæmorrhoidal affections in many diseases, as fevers, cerebral disturbances, and the congestion or inflammation of the abdominal viscera, &c. Considering the intimate connection of the hæmorrhoidal vessels with the whole of the portal circulation especially, this, in regard to the latter lesions, might be expected. The salutary effect, however, is not altogether owing, as is usually supposed, to the blood effused. Nearly as much is to be ascribed to a revulsion in the circulation, establishing a new centre of fluxion, in proof of which, tumours not bleeding are scarcely less serviceable. This natural process of cure may be successfully imitated by the application of leeches about the verge of the anus. French practitioners particularly, very highly appreciate it, and justly, according to my own observations, having resorted to it in a wide circle of cases.

To attempt at all the cure of hæmorrhoids, some have doubted the propriety. That a sudden suppression of it has, in some

instances proved hurtful cannot be denied. To restore it when such is the effect, is a most important consideration, and which may usually be accomplished by active purging with those articles, operating specifically on the rectum, or by stimulating enemata,—by an application of leeches around the anus, and the frequent use of a semicupium. Yet hæmorrhoids is troublesome,—occasionally leads, as we have seen, to serious consequences, and should be cured when admissible, of which an enlightened practitioner will determine. Cases forbidding it are very rare according to my experience. Doubts, however, of its propriety being felt, the apprehended consequences may be averted by certain preventives, as a low abstemious course of living, occasional bleedings and purgings, or, at least, due attention to the bowels, and a vicarious drain or divellent, by a seton or issue. The individual, however, not promising to submit to this course, or, from his character or habits, distrusting his resolution to continue it faithfully, it were better to decline the radical cure, and leave him to his fate.

In conclusion, I cannot forbear to observe, that between the rectum and some parts of the body, and with the lungs especially, there is a very close sympathy. Fistula in ano often ends in phthisis pulmonalis, and should the latter pre-exist, the former is rarely cured, or if cured, the consumption becomes aggravated. An irritation of the rectum, from any cause is, indeed, very apt to induce no inconsiderable constitutional derangement. We see it strikingly exemplified in strictures of that intestine, not to advert to the influence of other of its affections. Cherry stones collected in this position, I once knew to excite a general tetanoid state, and ascarides have, at different times, occasioned the whole class of neuroses, as well as many other diseases. Even an accumulation of indurated fæces has done very extensive mischief in the same way. Curious in themselves, and as leading to important practical results, these facts should not be forgotten.

I have purposely discussed with brevity this subject, perhaps the most important and interesting of all the hæmorrhages when viewed in its several relations, under the conviction that the deficiencies of the mere sketch I have given will be amply supplied by my colleague of the surgical chair in this school, into whose province it enters.

CUTANEOUS HÆMORRHAGE.

Early in the history of medicine, certain red or purple maculæ or blotches were recognized on the cutaneous surface, to which the titles petechiæ, vibices, &c., were given. These, however, having, I think, been sufficiently ascertained to be merely contingencies on fever and other acute diseases, subjected, with bad ventilation, to heating or alexapharmic practice, I exclude from my present consideration. Differing entirely from Willan, by whom the case I have in view is deemed an eruption, and is placed by him in the order *exanthemata*, I hold it to be a variety of hæmorrhage, which, while conspicuously displayed externally, belongs also to the mucous surfaces, as well as other parts of the interior. It has, in comparatively modern times, been denominated,

PURPURA HÆMORRHAGICA.

The first of these terms is said to be derived from a supposed analogy in the colour of the spots to that of the shell-fish from which the ancient purple dye was procured,—and the second added to express the improved pathological view of the affection. Founded on gradations of violence only, some distinctions have been made in this hæmorrhage by the more formal systematic writers, which will not be regarded by me.

The mode of invasion of this hæmorrhage is different. In some cases it slowly approaches with the manifestation of general disorder of the system, and particularly extreme lassitude, weariness, disinclination to motion,—sometimes a tendency to syncope, and depression of spirits uniformly. Deep-seated pains are pretty constantly complained of in the limbs,—the back or loins attended by a sense of anxiety and oppression,—anorexia,—constipation,—flatulent distension,—embarrassed respiration, or more acuteness of suffering in the praecordia, stomach, bowels, lungs, &c. During this precursory stage, the circulation is mostly feeble, and may be decidedly so, with diminished heat and moisture of the surface. But in other instances it is otherwise. Even fever is not uncommon, more, however, of an irritative or hectic character,—coming on in paroxysms, ending in per-

spiration. These prelusive symptoms may continue for weeks. Nevertheless, it as frequently comes on with little or no premonition whatever,—the effusion of blood apparently anticipating every thing else. Be its introduction in either mode, when the attack is actually formed, there will be perceived, unless the internal hæmorrhage has been rapid and profuse, an indication of reaction. The pulse becomes slower, fuller and stronger, with greater warmth of surface and diffused excitement. Examples, on the contrary, occur in which an aspect is presented of great debility, owing to exhaustion from the cause just assigned, or the oppression of vital energy by heavy engorgements.

Bateman thus accurately describes the cutaneous affection. "The petechiæ are often of a large size, and are interspersed with vibices, ecchymosis, or livid stripes and patches, resembling the marks left by the strokes of a whip, or violent bruises. They commonly appear first on the legs, and at uncertain periods afterwards, on the thighs, arms and trunk of the body,—the hands being more rarely spotted with them, and the face generally free. They are usually of a bright red colour when they first appear, but soon become purple or livid,—and when about to disappear, they change to a brown or yellowish hue, so that, as new eruptions arise, and the absorption of old ones slowly proceeds, the variety of colours is commonly seen in the different spots at the same time. The cuticle over them appears smooth and shining, but is not sensibly elevated: in a few cases, however, the cuticle has been seen raised into a sort of vesicle, containing black blood. This more frequently happens in the spots which appear on the tongue, gums, palate and inside of the cheeks and lips, when the cuticle is extremely thin, and breaks from the slightest force, discharging the effused blood. The slightest pressure on the skin, even such as is applied in feeling the pulse, will often produce a purple blotch like that which is left after a severe bruise."**

* In a modification of the affection, the blood, instead of being thus deposited, penetrates through the pores of the skin, as serum does in the perspiratory process.

Both Aristotle and Theophrastus notice the occurrence, and I formerly cited a passage from Lucan in which it is described. It has been met with in low fevers, as stated by Huxham and other writers, though more generally it seems to have been produced by extreme mental or bodily anguish, or the two united, or whatever, indeed, throws the nervous system into vehement commotions. Examples without number might be collected to this purpose, some of the most striking of which I shall give. Charles IX., of France, a cruel and infamous

Moreover, it happens that, simultaneously with the affection of the tegumentary tissues, the internal structures are similarly involved, and where the covering of the part is delicate and readily ruptured, immense losses of blood ensue. These discharges may be continued or intermittent, recurring daily, or at more distant intervals, so that the duration of the disease is very indefinite, terminating suddenly, or in a few days, or is protracted for weeks, or months, or years. Not a little curious is it that, in some chronic instances of it, though the purpura may remain, vigorous health shall be enjoyed. The late Professor Duncan, of Edinburgh, was in the habit of mentioning a boy whose skin continued in this state for years, with proneness to ecchymosis from the slightest injury, though seemingly otherwise so well as to be capable of hard labour or the athletic exercises. Most of the instances of the kind, however, sooner or later have ended fatally by the supervention of enormous haemorrhage from another part, and such was the fate of the boy who died ultimately a victim to haemoptysis. The case I am to relate is analogous to the preceding one. There was brought to me, in 1832, from the country, a young woman, stout, full and strong, to be cured of a series of livid blotches that occupied the surface of her body, and of one of her legs. Eighteen months before, they had appeared coincidently with haematemesis, from the effects of which she shortly recovered, with the retention, however, of the blotches. No service did she derive from my prescriptions or those of other physicians, and died, after a considerable interval, by a loss of blood from the nostrils.

Not much is satisfactorily determined as to the causes of pursovereign, tortured by remorse on the approach of death, thus perished. Mezeray, the historian who furnishes this fact, also mentions that of a Commander of a garrison, who, condemned to die for having cowardly surrendered it, broke out in such a sweat as soon as he saw the gallows on which he was to be executed. Lombard tells us of a General similarly affected by the mortification or dread of the consequences of losing a battle,—and of a woman, at the terror of robbers, into whose hands she had fallen. We have, from Fabricius, the instance of a mother who, in the depth of grief for the loss of an only son, thinking that she had beheld his apparition, imploring her prayers for his relief from purgatory, became violently agitated, and was seized with this cutaneous exudation. The Saviour of man himself, in the moment of his most excruciating sufferings, presented this heart-rending spectacle. “By thine agony and bloody sweat,” is, indeed, one of the touching invocations addressed to his mercy, in the Litany of the Church.

pura. The highest authorities, however, seem to be agreed that it is mainly associated with a bad habit of body, acquired by some positive antecedent disease, or by inhabiting low, damp, dark, ill-ventilated dwellings, with the other incidents inseparable from poverty,—penurious diet, defective clothing,—labour to fatigue and exhaustion,—all aggravated by mental anxiety or sharper misery. But no less is it admitted, that the affection occurs, and, perhaps, nearly as often among persons seemingly in sound health, and in the full enjoyment of the comforts and felicities of life. These are the representations of the books, which I am inclined to suspect refer to two states of disease not identical,—the one a modification of scurvy, and the other purpura proper,—thus indiscriminately confounded. Much have I seen of the former, in the final stages of cholera infantum especially, and only some five or six cases of the latter,—every one of which was in a healthy subject, of respectable condition, with no privations or inconveniences of living.

The principal difficulty in the diagnostication of purpura arises, indeed, from its analogy to these scorbutic bleedings. Contrasting, however, the two affections in their prominent features, we shall perceive sufficient individuality in them without descending into details. Genuine purpura seems to me to be of sudden access,—often without an appreciable cause,—takes place in sound individuals, and is a singularly pervading and an active hæmorrhage,—the dermoid tegument participating to a limited extent only. Extravasations of blood incident to scurvy, are reversely slow in development,—uniformly preceded by extreme prostration of system, brought on by obvious causes,—are more local and of smaller amount, the blood being also different. Yet much perplexity existing, the whole history of the case must be surveyed in its rise, progress and present condition, so as to render a correct decision attainable.

This is held to be a very serious, and not unfrequently a fatal disease. But it has its gradations of violence, and in proportion to this is the danger. Many cases of it are so slight as to pass away spontaneously, or to exact very trivial remedies. There are others, again, more alarming, to be cured by vigorous treatment, and sometimes we have to encounter such as defy the united resources of nature and art. Disastrous consequences are here induced by the quantity of blood lost, and where we have

reason to suspect a large extent of internal surface to be concerned in the hæmorrhage, or it is poured out copiously of a sudden, or continues long more moderately, or returns on a temporary suppression of it with depression of the vital forces, immediate death is to be apprehended, or a wretched state of system to be entailed, which may finally lead to the same catastrophe.

Considerable attention has been paid of late to the anatomical characters of purpura. The appearance of those of the exterior has partly been noticed. I have only to add that, according to Rayer, who made a careful dissection of the tegumentary tissues, the effusion is not uniformly in the same position. He found it on the rete mucosum,—in the alveoli of the cutis and in the sub-cellular membrane. The first contained it when it exhibited the petechial, and the last when the ecchymosed aspect. As the deposits of blood were small or large, so was it fluid or coagulated.

Evidence is afforded of the liability of the whole of the viscera of the great cavities to share in the affection. The lesions consist of petechiæ, vibices, or large ecchymosed spots, and effused blood in clots or fluid, with softening of texture in certain organs. These have been observed in the brain and meninges,—the lungs and membranes,—the heart and pericardium,—the liver, the spleen,—the uterus, and, above all, the mucous surface of the primæ viæ. Not uniformly are phenomena so wide spread, met with,—though pretty generally,—few instances severe enough to occasion death it is presumable, being without them, and I am not aware of a single case on record, in which there was an entire exemption.

The peculiar obscurity confessed by many in the pathology of purpura, I cannot perceive. That it is not of the nature of scurvy, nor of the petechiæ of fever, is clear. Neither can it be placed among the exanthematous eruptions. As an hæmorrhage it must be considered, varying from others in this respect chiefly, that while the generality of them are assignable to obvious causes, this one comes on in the absence of every thing to explain its production. Coupling this circumstance with the extensiveness of its prevalence over the body, I know not to what else it is referable than the constitutional state, vaguely called the hæmorrhagic diathesis or tendency. Great reason have we to suppose

that it is independent of any of the ordinary organic lesions, and proceeds from derangement of innervation, producing the change in the capillaries and in the blood itself, favouring sanguineous effusions, and which condition may be natural or acquired, the latter, sometimes, also permanent or very enduring.

Not less established and more important in relation to practice is the fact that the disease does prevail in two very different states of the system, with a full and febrile pulse, warm skin,—flushed face,—or the reverse.

Called to a case of any activity, venesection should be instantly performed. It is the only decisive remedy. Nor is the amount of blood detracted to be small, or any timidity to deter from a repetition of the operation, where the necessity for it exists. I drew as much as sixty ounces in one case, and in another, half this amount, in several successive bleedings, with the most decisive advantage. The course is justified by the state of the circulation, by the appearance of the blood, which is thick and sometimes heavily sized, by the albuminous urine, by the acuteness of pain in the cavities, and by the relief afforded from the hæmorrhage itself when not excessive. Many of the European practitioners, as Parry, McIntosh, &c., give to it their support,—though not so intrepidly as I have ventured. But it is not to be supposed that under any other circumstances than stated, and in the extremest emergencies, would I carry it to such an extent. Generally, my bleedings are far more moderate, and especially in an advanced stage, where the loss of blood is ill borne.

Next in value of the remedies is purging deemed, with the saline articles, and there are facts to render it probable that the sulphate of soda is specially adapted to the disease. Great benefit, however, is derived by cold applications to the surface,—either sponging or covering it over with cloths wrung out of water of a moderate temperature. Nay, on one occasion, in consultation with Dr. Meigs, we immersed a girl in a cold bath, and with such effect, that henceforward she speedily recovered. It was on the second day of the attack,—the purpura pervaded her skin, and though she had been previously depleted, the pulse was still full and strong, and the surface warm.

No confidence do I place in the astringents and acids usually appropriated to hæmorrhage, and have little experience of the alkalies and neutral salts recently recommended on the authority

of Stephens. But I am disposed to believe that opiates are deserving of attention, more, however, from analogy than any better evidence. Emetics and the spirits of turpentine I would, for the present, place on the same footing.

In the less active states of this disease, some variation in the treatment is required. Blood-letting, if admissible at all, must be practised cautiously, as well, indeed, as whatever else is calculated to increase debility. Debarred of the former, however, we are nearly destitute of means of any certainty of advantage in an urgent emergency. Those previously enumerated, and commonly employed, have proved nugatory in my hands. My trust would be mainly in the sulphate of soda, the spirits of turpentine, the sulphate of quinine, opiates and wine.

The skin, I have said, is sometimes left with purpura long after the affection in other parts seems to have ceased. Too slender is my knowledge of it, to express any decided opinion, either of its nature or treatment. From what I have seen of it, however, I suspect that the blood thus deposited, undergoes a change in these particular instances, rendering it irremovable by the natural or assisted powers of absorption, or, perhaps, the blood itself previously absorbed, some colouring matter separated from it remains so intermixed with the texture it occupies,—*so dyed in the grain*, as it were, as to constitute an indelible stigma or stain, of which we are not defective in analogies. Be it, however, as it may, I could not find any remedy for it in the only case of the affection which has ever come under my care.

The disposition of purpura to return is very considerable. There is a case reported where it reappeared annually, for six successive summers, and many at shorter intervals,—though of less duration,—sometimes observing with tolerable exactness the law of periodicity. Tendencies of this sort are carefully to be guarded against by a strict avoidance of the exciting causes, and by an endeavour to rectify the pathological condition, whether of the solids or fluids, which may be supposed to affect the case.

HYDROPS, OR DROPSY.

DROPSY may be defined a preternatural collection of serous or more viscid fluids, chiefly in the cavities or cellular membrane of the body, and receives different appellations from the particular situation in which the deposition takes place. The principles, however, in the one instance, being essentially applicable to the treatment of the whole, I shall call attention only to the leading and more important forms of the disease, or, in other words, to such as appertain to the practice of medicine.

Dropsy has been variously divided and classified. But the most proper collocation of the cases is surely the one that has reference to the tissues in which they may occur. Conformably to this view, then, ascites, hydrothorax, hydrops, pericardii and hydrocephalus internus, ought to be placed together as belonging to the serous—and anasarca stand by itself, as the affection of the cellular membrane. Effusions of the skin are too insignificant to claim attention, and dropsy of the stomach and of the womb, though noticed by some writers, as proceeding from the mucous lining of these organs, may, in the same manner, be pretermitted as of very doubtful existence.*

* Nevertheless, it is true that, from the internal surface of the stomach and womb, there is, sometimes, a very copious exhalation of serous fluids. This, indeed, often happens in the gastric affection denominated pyrosis, and I have repeatedly seen analogous discharges from the uterus in very large quantities. Cases of this description, however, can no more be considered as dropsy than certain forms of watery diarrhoea. By hydrometra proper, seems to be understood an affection of the womb, where, from some previous lesion, its mouth becomes sealed up by a secretion of gelatinous matter, as in the early stage of gestation, or by adhesion, or thickening, or by tumours, whereby the fluid poured into its cavity is retained. The accumulations, under such circumstances, may be to a prodigious extent, and, among other instances to this purport, not the least remarkable, is one related by Vesalius, amounting to an hundred and eighty pints, in what period we do not learn. But, several years ago, I attended

Dropsy, in its practical relations, may be limited to the products only of the serous and cellular textures.

In the management of the subject it may, perhaps, be best to present, at first, a general view of it, withholding the details till we come to the consideration of each variety of dropsy, when it will be proper to notice the peculiarities by which they are severally distinguished.

Diversified greatly by its locations, it is nearly impossible, in any general description, to embrace the symptoms of the modifications of the disease. Each form has its peculiarities to a certain extent, and between some of them there are scarcely any common features of resemblance. Pathologically the same, they are still as different in their external physiognomy, as affections the least allied.

In the ensuing sketch, I shall refer to dropsies of the thorax, abdomen and cellular tissue, these having the closest affinities. Cerebral effusions are too distinctive to be included in it. Even thus limited, there is an additional difficulty in the just delineation of dropsy, from the commingling of its own symptoms with those of the lesion whence it proceeds.

Taken in the average, however, the hydropic condition in view, is very strongly characterized. First, there is distension or bloatedness: the complexion pale or sallow, or dingy, the skin dry, harsh and unperspirable, the temperature of the surface low, or unequally diffused, the urine scanty and high-coloured, the bowels costive, the appetite deficient, the process of digestion impaired,—thirst considerable, or even intense, and the tongue furred and moist, or clean, parched and red. As to the pulse, it is vigorous and tense, or small and corded, or feeble, diminutive and accelerated, or full, soft and compressible. Cough and

a lady who, in six days, I am sure evacuated nearly this amount, and I was assured that some time before and afterwards it was not less. The case was connected with caries of the dorsal vertebrae. The lesion giving rise to such effusions is, usually, inflammation, followed by ulceration of the mucous coat—though, in the more chronic states of the disease, every variety of disorganization of the uterus has been detected, as well as of other portions of the abdominal contents. The sufferings in this affection are mostly severe, and occasionally excruciating, modified by the state and degree of the injury. It need scarcely be observed that, in pregnancy, the uterus is liable to enormous distension from an undue secretion of the amnios, in which, however, the viscous itself has little or no concern.

oppression, languor and disinclination to exertion exist, with hebetude of mind, and disposition to somnolency. Debility and emaciation rapidly advance, exactly, indeed, as the intumescence increases and the circulation is more disturbed, becoming quicker or slower, and may be intermittent. Feverish irritation now steadily prevails, exasperated in the evening,—palpitations of the heart occasionally are felt, respiration is farther embarrassed, so that recumbency can no longer be endured, and sleep is interrupted by agitating dreams, or a sense of suffocation. As delineated, such is the tenor of the disease, which, however, independently of the position it occupies, may be varied by other causes, and particularly by the degree of its activity, either inflammatory or the reverse. It sometimes comes on suddenly, and runs through its stages with force and expedition,—while oftener, perhaps, its approach is gradual and it lingers out a feebler and more protracted existence.

Dropsy is one of those affections from which no age, or sex, or temperament or condition is wholly exempt. But it is more apt to occur after the meridian of life, rather in males than females, more in the phlegmatic and attenuated than the sanguine and robust, and in the humbler than elevated classes of society.

Climate seems to exercise no inconsiderable influence in creating a predisposition to the disease. Thus in that of Egypt, Syria, Arabia and Nubia, so steadily warm and dry, we are told that dropsy is scarcely known,—while the fact is better ascertained that in regions chilly, damp and austere, it greatly prevails. Even temporary states of such weather are not without a similar effect. Much, also, has been assigned in the same way to certain habits, occupations and diet. It is probable that the indolent, or those who work in a sedentary position are more predisposed to it than the followers of the active employments, or that the poor who are fed inadequately, may suffer in consequence from it, to a greater extent, and which has been remarked especially among this class of people in seasons of scarcity or famine. But, though undoubtedly nutritious, it is a common opinion, sanctioned in some degree by professional authority, that a too exclusive use of pork or fish conduces to the same end.

Dropsy, when acute, and of an active character, is the immediate result of phlogosis of some tissue, and is excited by all those

causes by which such a pathological condition is ordinarily induced. These I shall not now enumerate. Cases, however, are occasionally of a very anomalous character in their mode of production, some of which may be deserving of recital. Exposure to cold, or whatever checks perspiration, we are aware, is a common cause of the disease, and not the least curious illustrations of it have come under my own observation.

Many years ago, I was called in consultation with the late Professor Physick, to a gentleman from Virginia, with general dropsy, who traced its commencement to his having imprudently plunged into a cold bath, while heated and sweating from severe exercise. We were told by him, that the effusion took place a very few hours after coming out of the bath, and that previously his health had been perfect.

Nearly about the same time Dr. Physick and myself attended a gentleman from South Carolina, with the same disease, by whom we were informed that, in robust health, returning from a tiresome and dusty ride, he went into a bath, the water of which was so hot that he could scarcely bear it. Continuing in it, however, for only a short time, on leaving it, he found his skin very florid, even scalded, and soon experienced the distension of ascites, to which succeeded anasarca and next hydrothorax, so that when he came under our care he had general dropsy.

Cases I have sometimes seen to follow almost immediately flatulent colic. During the winter of 1812, I attended, with the late Professor Wistar, a lad, who having become heated and fatigued by skating, laid on the ice, and after a short period was seized with colic, attended by a distension of the abdomen amounting to tympanitis. By carminatives, opiates and external warmth, he was very quickly relieved from pain. But on our next visit, a few hours afterwards, we were astonished to find that he laboured under ascites and œdeema of the lower extremities.

In the summer of 1825, a lady from the country consulted me, who after eating water-melon and some other fruits was attacked, as she said, with colic, quickly converted into tympanitis, and ultimately into dropsy of the abdomen and of the legs and feet. This was the state of things when presented to me, which was relieved in a few days by a copious watery discharge from the kidneys and bowels.

Crapulent colic in another and more recent instance, which, at first, induced the most extraordinary degree of tympanitis I have ever seen, ended in confirmed ascites.

Draughts of cold water have immediately excited the disease, of which, probably, the most remarkable instance is afforded by De Haan, who informs us that a large portion of the army of the Emperor Charles V., when proceeding against Tunis, fell into dropsy almost instantly after drinking freely of cold water, while heated and exhausted, on a march in hot sultry weather.

Bateman reports a case still more extraordinary, where the disease was at once induced by fright, and Ludolff de Meza insists on its having occasionally followed violent paroxysms of rage. But though dropsy may be thus suddenly brought on, it is more commonly the result of some antecedent chronic lesion, by which the animal economy is disordered. These lesions are numerous and infinitely diversified, as will presently appear when we come to describe the anatomical characters of the disease.

Chiefly, in this country, it is consequent on ill-cured intermit-tent or other autumnal fevers, or the inveterate habit of drunk-enness, by which obstructions, or other depraved states of the chylopoietic viscera are induced. That such conditions of the liver and spleen, as well as of the pancreas and mesenteric glands occasion it, is universally admitted. But it seems to be less known that it proceeds from derangements of the primæ viæ. Long-continued dyspepsia very frequently causes it, also pro-tracted dysentery, and diarrhoea, and in still more instances, a lengthened course of purging by the harsh and drastic articles, according to my experience.

Moreover, it may be traced to depravation of the kidneys and uterus, functional or otherwise,—to disorganizations of the lungs, the heart and great vessels, and, in short, to all those affections which exhaust the energies of the constitution or vitiate it, among which are the ravages of irregular or misplaced gout or rheuma-tism, the repercussion of eruptions, a dry, husky, unspirable skin, following particularly scarlatina and other rashes,—profuse or repeated haemorrhages, the abuse of mercury, or arsenic, or such like articles, and lastly, a peculiar state of the blood itself, either too abundant and rich in crassamentation, or the reverse, deficient in quantity and impoverished, so as to become thin and watery.

External dropsy excepted, every other variety is involved in

such obscurity as to render it more or less difficult of a precise recognition. But a just discrimination, in many instances, is of the highest practical importance. This consideration will lead me, when I come to the discussion of the special dropsies, to devote sufficient attention to their respective diagnoses, and to which occasions, as the most appropriate, I mean to postpone the more minute examination of the subject.

Transiently, I shall now remark that, in establishing the location of the effusion, we may be greatly assisted by an accurate investigation of the preliminary phenomena,—these being such as denote ordinarily phlogistic or other disturbance of particular organs or tissues. Thus, the dropsies of the chest are preceded, and, indeed, very often accompanied by indications of some pulmonary or cardiac affection,—those of the abdomen in a similar manner of its contents, and so in regard to the rest of the effusions. Next we are to inquire into the character of the case,—how far it is acute or chronic, actively inflammatory or the reverse, the degree of integrity of the constitution, and here our course is illuminated by so many circumstances that we shall experience comparatively little difficulty or embarrassment.

On the same account just mentioned I think it best to reserve, for the future, the indication of those circumstances that help us to decide on the event of the case, indulging, at present, in only a few general reflections. Dropsy is a disease of no easy cure, under whatever aspect it may be presented. Even cases of recent date, originating from simple phlogosis, in a sound constitution, too often perplex or baffle our efforts. But when of long standing and dependent on any material organic lesion, with vitiation of habit, the difficulty is so enhanced, that very seldom can a permanent or essential sanative impression be made, and we must be content to mitigate sufferings, and retard the catastrophe which we have not the power to control or prevent. It is the organic lesion or lesions that constitute the difficulty, and not the removal of the effusion, which is merely an effect, and, for the most part, easy of attainment. *Œdema*, uncomplicated, and arising out of local irritation of the cellular membrane, is, perhaps, the only form of the disease in which our resources are with any certainty exercised, or where we may, in a tone of confidence, predict a speedy and absolute recovery.

My intention, and for reasons similar to those already ex-

pressed, is now to dispose, in a succinct statement, of the autopsic appearances in dropsy. But, hereafter, my aim will be to compensate for this deficiency by an ampler exposition. These must be modified by the nature of the case, its cause, its location, the degree of severity, its duration and simplicity or complication. The tissue immediately concerned exhibits the characters of phlogosis, acute or chronic, with the effects of that process, though not invariably. None such are sometimes discernible, inflammation having been removed by the effusion in the slight acute attacks, or never existed, as in those induced by an anemic condition, with tenuity of the circulating fluids.

Derangements of structure, however, from the trivial to the most serious, are pretty constantly detected in some one or more of the organs of the two great cavities. Generally speaking, we may expect to find, with copious effusions, the serous membranes, whether of the thorax or abdomen, thickened and opaque—sometimes harder or more dense, while, in other instances, softer than natural—and, occasionally, though much less common, extravasations of lymph, with false adhesions. It so seldom, indeed, happens that there is any evidence of active inflammation, it may reasonably be suspected, when such appearances are presented as just mentioned, that they are the product of some antecedent phlegmasia, pleurisy or peritonitis, &c. The principal changes to be observed in the cellular membrane are, thickening or attenuation and dilatation of the cells, with here and there several converted into one, forming large sacs or pouches. It is predictable of both tissues, that all the anatomical phenomena are rather the result of a slow, feeble and diffused phlogosis than of a rapid, intense and concentrated state of the process.

As to the lesions of the solid viscera, every one to which these organs are liable has been noticed in connection with dropsy. There are some, however, more uniformly exhibited than others, and these it may be well briefly to indicate.

Commencing with the lungs, I have to state that, perhaps, the most frequent appearances are those of bronchitis, sometimes slight traces of inflammation in the mucous coat, oftener only thickened, softened or indurated, with now and then ulceration and some of the bronchi dilated—in the substance of the organ, chronic congestion, hepatization and other conditions of obstruction, though comparatively seldom any tubercular degene-

rations. The heart is found scarcely less in fault, or variously affected: whatever, in short, occasions an irregularity in its functions, and particularly hypertrophy or dilatation of it, or destruction of its valves. Nearly the same may be asserted of the liver and spleen. These viscera have been reported as altered in every possible mode and degree, simply indurated or scirrhosified, or tuberculated, or studded by hydatids, or with one large or numerous small abscesses, or of overgrown dimensions from chronic congestion merely without any material change of structure—the latter being more incident to the spleen, which may be enormously enlarged. But, while these increased conditions of the liver incontestably tend to dropsy, it is alleged that, of all its pathological states, the one most conducive to the event is that where, of rather reduced dimensions, the substance becomes granular, sometimes called the nutmeg liver, or, from the yellowness of it, cirrhosis.

As diversified are the lesions of the kidneys. But to certain conditions, as more steadily associated with dropsy, greater importance has lately been attached. Bright, of London, who has led the way in this investigation, thinks he is entitled to the conclusion that there are three states particularly to be met with,—the first consisting of anemia or debility of the organ—the second of induration of its cortical portion especially, and the third, of a further degree of it, amounting nearly to the firmness of cartilage. This general induration of texture, however, on a more careful inspection, seems, as well on the surface as the interior, to be constituted of granulations, as in the case of the lesion just noticed. Granting the correctness of his observation, it is still true that many other changes in these organs are discovered, as scirrhosity, suppuration, ulceration or adventitious formations, tumours, hydatids or simple hypertrophy merely. Lesions of the uterus and ovaries are frequently observed, which may not be greater than belong to ordinary amenorrhœa, or menorrhagia, or uterine haemorrhage, or amount to injuries of structure of every grade and kind. The appearances in the *primæ viæ* have been imperfectly recorded. It is to be inferred, however, that they are such as belong to the chronic affections of the mucous membrane of these parts under ordinary circumstances.

Each portion of the circulatory vessels is, sometimes, implicated in dropsy. We are told that aneurisms of the large arte-

ries are not uncommon, that inflammation of their inner surface is less so, though sometimes ulcerated, or the calibre is reduced by thickening of the lining membrane, or choked up by fibrinous clots or polypous concretions or osseous deposits, and that the veins present nearly similar appearances, with the additional one of complete obliteration, which has been particularly remarked of the vena cava in three instances.

Lesions of the lymphatic system are occasionally displayed. The vessels at all times are more prominent and apparently enlarged, which, however, may be referred to the removal of the adipose matter. But they are, sometimes, actually dilated, and have been known to be ruptured, even the thoracic duct itself, at least in one case. As frequently they are varicose, and have been found entirely obstructed by concretions within or obliteration of their trunks, from which states the thoracic duct does not always escape. More uniformly affected are probably the lymphatic glands, throughout their entire distribution. Those surrounding the great vessels have recently been described as enlarged and indurated, without any essential alteration of structure, constituting merely an hypertrophy. But it is to the mesenteric glands that attention has been mainly directed, and with the lesions of which we are best acquainted. These exhibit every modification of organic change.

The pathology of dropsy, though approaching to more certainty, continues unsettled. Till lately, the opinion was generally entertained that the disease arises from the destruction of that exact balance which exists in health, between the processes of exhalation and absorption. It was alleged that, when the system is in a sound condition, a vapoury fluid or halitus constantly escapes into every cavity or interstice of the body, which, without being permitted to accumulate to any extent, is taken up by the lymphatics and disposed of in a way sufficiently intelligible. Hence the conclusion that hydropic collections may take place either by an excess of exhalation or from some decay or imperfection in the powers of absorption.

Each branch of this doctrine, except with the limitations hereafter to be stated, is founded in error, and can no longer be sustained. The fluid of dropsy is rarely, or perhaps never, precisely the same as the natural product of the exhalents or the serum of the blood. Even when approaching nearest to an identity, there

is still a material difference, if not in the ingredients, in the proportions in which they enter into the composition. Commonly there is more water, and less animal and other matters, in the hydropic deposition. But this may present every diversity of character, having been found, according to an authoritative writer,* “of all colours and conditions—yellow, green or black, sometimes as thin as water and incapable of coagulation by heat, which renders it only turbid—while, at other times, it is ropy or gelatinous, so as to obstruct the canula in parenastisis, and has been met with milky, or oily, or bloody, or sanious, or like the glairy ichor of sores and singularly acrid, or so urinous or ammoniacal as to turn red substances green, or, from the quantity of soda it contained, to form very readily, by the addition of sulphuric acid, Glauber salts.”

The general diminution of absorption in the disease can no less be disproved. It appears, indeed, that it is rather more vigorously performed, since scarcely, under any circumstances, does emaciation more rapidly advance. Much, or the whole, of the adipose matter is speedily absorbed, and, in some instances, muscles, cartilage, tendons, even bone itself, have been removed. Extravasations of blood under the cuticle, in the shape of ecchymosis or haemorrhœa, are taken up, and no undue accumulation of synovial fluid occurs in the joints, which must happen were there any suspension of the powers of absorption. The same is to be remarked with respect to the great cavities of the body. Thus, though one of them may be in a hydropic state, the others are often entirely free, whatever is exhaled being at once removed. Constipated bowels, with very indurated fæces, nearly always an attendant on the early stage of dropsy, supplies a further example to the same effect. There is here such quick absorption of the thinner portion of the excrementitious matter that the residue becomes hard and scybalous.

As far as we have proceeded, all is indisputable. But in relation to the cavity affected, the state of absorption is not very clearly ascertained. The accumulation of fluid, which apparently denotes a want of it, is far from being conclusive of the fact, since it may be owing to the increase of effusion. In a very leaky condition, the ship will fill, though every pump shall be sound, and worked with more than ordinary force and industry,

* Good.

and so it may be occasionally, in dropsy, where the one greatly preponderates over the other process. Effusion sometimes takes place with almost inconceivable rapidity and copiousness, as is strikingly evinced in some cases where it is replenished even in a few hours after the operation of tapping.

Considering, however, the abnormal state of the tissue affected, it is not unreasonable to suppose that the absorbents, in common with whatever else enters into its composition, may share in derangements by which their functions become impaired or totally suspended. Experience proves, indeed, that inflammation has such an effect, and it no less appears to be incident to certain atonic conditions. Even in health, the absorbents seem to possess a sort of elective affinity as to certain matters,—eagerly seizing on some,—while others are rejected,—and which aversion may be invincibly felt in regard to this morbid fluid.

Declining to decide this point positively, which with our present intelligence, we are perhaps not warranted to do, it may be safer to conclude, that in relation to the fluid thrown out in dropsy, the same activity in the lymphatics is not usually displayed. The conclusion from all I have said is, that the hydropic fluid is, for the most part, widely different from that exhaled in a sound condition, and that, though the absorbent energies generally are not affected, they may be so occasionally, at least as to this fluid particularly.

Conceding this, or that there is sometimes an aversion in the lymphatics to this peculiar fluid, I cannot consider deficient absorption as a cause of dropsy, or that even the lesions of the absorbent system, functional or organic, have any material influence in the production of the disease. Enough may it be, at present, to state, in support of these conclusions, that the phenomena of dropsy do not correspond, to any extent, with impaired absorption, or are at all reconcilable to such an hypothesis,—and that every description of lymphatic derangement so frequently occurs without accumulated effusion, we are scarcely entitled to view the two conditions in the relation of cause and effect. Examples are supplied by Moreton, Cullen, Monro, Bichat, Cooper, Laennec and other writers where the principal lymphatic trunks were obstructed in the absence of any hydropic tendencies,—and Monro and Dupuytren tied the thoracic duct in the lower animals as an *experimentum crucis*, and no effusion followed.

From the lights of my own experience, aided by those general reasonings which never fail to influence more or less our opinions, I should say that dropsy of every description depends on preternatural effusions. But in tracing out its pathology, we must not stop at this point. The real or immediate source of the disease is to be sought in a state of things prior to the serous deposition. Does not the accumulation of fluid itself suppose an antecedent lesion, since without it such could not happen? That the hydropic condition is usually associated with the phenomena of inflammation, is shown, in the first place, by most of the remote causes of it, however diversified, operating to this effect. It is not to the acute disease, suddenly induced, that I now only refer,—every form of genuine dropsy seeming to me to be embraced in the same category. For the right understanding of the modus operandi of some of the causes, it may be proper to advert to the well-known sympathetic relations which subsist between the tegumentary and some of the internal tissues or organs, by which there is a reciprocity in the vicarious performance of each other's functions. Constantly have we illustrations of this in the interchange of efforts by the skin and kidney especially for mutual relief. Either having its excretory office suppressed, the other is strongly disposed to compensate the loss, and protect the general economy from consequent injury by an increase of its own discharge. As such is a natural provision growing out of the great principle of conservation, it can hardly be deemed a morbid process under ordinary circumstances,—though it may become so where the action of the organ is excessive or long continued, it then inducing irritation, inflammation or even structural lesions of the kidney. Different is it, however, when any of the other viscera of the abdominal or of the thoracic cavity, or, indeed, the subcutaneous cellular tissue is concerned. It matters not, whether the subsidiary discharge of the fluid be in the form of watery diarrhoea, or of bronchorrhœa, or of effusion into the occluded cavities, or of anasarca, the evidence of an antecedent phlogistic irritation of the part whence it proceeds may, I think, be always detected. The reason of this difference is, probably, that the kidney being an emunctory, is more calculated to execute such an office with impunity than organs or structures less accustomed to it.

Cold, therefore, which is a prolific source of dropsy, applied

to the cutaneous surface, constricts it, and induces torpor of the capillary circulation, whereby perspiration ceasing, some internal organ or tissue becomes a centre of fluxion, leading to positive inflammation, and sometimes to effusion. This, indeed, is precisely the mode in which all the phlegmasia are excited by an exposure to cold. Generally, the vicarious elimination of fluid takes place from the bowels or kidneys where it passes off harmlessly. But instead of such outlets for its escape, the serous textures of the cavities being affected, were they to effuse copiously, we must have dropsy inevitably! This, then, is the mode in which cold produces its effects, and most clearly so in the extraordinary instance formerly mentioned, where dropsy immediately followed plunging into cold water.

It may, perhaps, be objected, that, in the case of the hot bath mentioned at the same time productive as speedily of the disease, the result ought to have been the reverse, or an augmentation of perspiration. But here the heat was so excessive it probably closed the pores of the skin or stimulated it beyond the capacity of action, as happens in scarlatina, and other efflorescences of which dropsy is occasionally the consequence. It is proved that perspiration does not take place where the temperature of the surface much exceeds an hundred degrees.

The agency of colic is not so intelligible in those instances I recited. Was the enormous quantity of gas condensed by some unknown process into a serous fluid, or did it excite inflammation of the peritoneum, and effusions consequently take place? The latter is the more probable conjecture. Yet it is indisputable that all the secreting surfaces sometimes most abundantly pour out air in place of their natural fluids. We see it in dyspepsia, in colic and in peritoneal tympanitis. Even the skin is no exception, of which we have a good deal of proof, and especially in a case lately reported by a French writer. It was that of a man who discharged gas in this way to such extent that, being immersed in water, large bubbles came up all around him.

The modus operandi of the lesions of the viscera is evidently by an extension of their irritations to an exhalent surface. An objection, however, to this explanation has been raised in its application to the kidneys. That by an interruption to their secretory operation, serum may accumulate in the circulation to an extent which, finding an outlet through the exhalents of a

cavity or the cellular membrane, might produce dropsy, is not inconceivable. Yet I am still more inclined to believe in the other mode of operation, and that the case does not constitute an exception to the general principle. Be it as it may, there can be no doubt, when dropsy follows disorders of the alimentary canal, such is the fact.

Nor is it less clear, in those instances arising from the metasis of cutaneous eruptions or other affections, that the primary irritation is transferred to the seat of the effusion.

Of the blood in the production of this effect, I have to observe that, in plethoric states, it is by causing a phlogistic irritation, and that exhaustion from haemorrhage, or in any way, may act in one of two modes. Experiments demonstrate that, whenever an exsanguineous condition is suddenly induced, there is an undue determination of blood to the serous and other membranes, by which, very likely, an irritation is raised, leading to effusion,—or where, from the more lengthened influence of other debilitating agencies, the system suffers a general dyscrasy, the circulating fluids may so far participate in the vitiation as to permit the thinner parts to leak out of the patulous mouths of the exhalents. Not at all militating against my proposition, this fact only lends confirmation to what I shall presently contend for—that there are two species of dropsy occurring in very opposite states of the system, and very differently induced.

That dropsy is sometimes the direct product of arachnitis, pleuritis, pericarditis, peritonitis, &c., as well as of phlogosis of the cellular membrane and the skin, is undeniably. The operation of a vesicatory is a conspicuous example of the latter. We may refer, also, to the influence of rheumatic and arthritic irritation occasionally on the synovial tissue. Yet it is not less true that these textures may pass through the several states of this process without such an event, and most commonly, indeed, the termination of it is otherwise. The pleura, the pericardium, the peritoneum, at least when phlogosed, extravasate ordinarily coagulable lymph, and the cellular membrane the same, having a tendency, however, greater than the serous tissues, to the formation of phlegmon and the secretion of pus. As inflammation thus varies in its terminations, it must be susceptible of modifications, and we are led to inquire into the circumstances which give to it that peculiarity inducing hydropic effusions. Con-

nected necessarily with neither intensity nor feebleness of action, what is the condition required for its production?

The question is one of great obscurity, and to attempt to solve it by alleging, as has been done, that the inflammation is of a specific nature, is only to repeat a barren, unmeaning phrase. Little more do we know concerning it than that the disposition to serous eliminations is comparatively seldom met with in recent active phlogosis—most commonly vessels from chronic or subacute states of it, and very much in proportion to its diffusiveness and superficiality. Generally this proposition holds true. Can it be disputed, for instance, that, when the cellular membrane is topically, though deeply affected, phlegmon arises, commencing with adhesive and ending in suppurative inflammation,—or, under the other circumstances, that œdema is not as uniformly induced? Equally is the doctrine appropriate to the serous tissues, as is shown by the evidence of dissections, nearly always meeting with lymphatic exudations in partial or isolated patches of inflammation, and serous effusions where it is wide and slightly spread over the surface. Take, for illustration, pleurisy and peritonitis under different circumstances. More than to any of its kindred tissues does this latter remark apply to the arachnoid, which abundantly effuses serum, even when the phlogosis scarcely exceeds an erythema. Delicate in the extreme in its fabric, it is also averse to take on the adhesive or suppurative process, and hence it is that, while these are pretty constant occurrences in the peritoneum, pleura and pericardium, serous effusions are as uniformly the product of its inflammations.

But is inflammation the *sine qua non* to dropsy, without which it cannot take place? That it is consequent on congestion in some way, has been plausibly urged. Besides, the well-known experiments of Lower, where effusion followed the tying of the vena cava and the jugular vein, there is the less equivocal fact of the occurrence of dropsy by the interruption of the circulation from the resistance of diseased viscera, as the liver or spleen, by pressure of the gravid uterus, by a ligature around a limb, and by various other impediments to the return of the blood. These are proofs habitually appealed to in support of the hypothesis, affirming the connection of dropsy with congestion or obstruction of the circulation, and which, at a glance, would warrant the conclusion. But a more careful examination exposes the error

and reconciles them to the doctrine of inflammation as the parent of the effusion. This is a point, however, which may require some elucidation. My wish is to convey the impression that, where dropsy is to be traced to an interrupted circulation, an irritation is created in the surrounding or remoter tissues, causing the effusion instead of escaping, as is usually imagined, from the large vessel or vessels so circumstanced. Thus, where the liver or spleen is infarcted, and ascites follows, it is to be ascribed to the inflammation excited in the peritoneum, and in the same manner do organic affections of the lungs, the heart or brain cause their respective dropsies by irritating the pleura, the pericardium or arachnoides. As to the experiments of Lower, they are equally explicable on a similar principle. Can it be presumed that a ligature around such vessels, (not to say any thing of the tendency of the incision through the integuments,) should not be productive of inflammation? Doubtless it was induced in the cellular membrane of the neck in the one instance, and in the peritoneum in the other, productive of œdema and ascites. But it is contended that a state of vascular repletion, what is denominated plethora, may alone, independently of any appreciable phlogosis in any one position of the body, induce dropsy. Cases of the disease do unquestionably occur apparently under these precise circumstances. But here a careful examination, I think, will always detect topical congestion in some point, which, as in the preceding instances of organic obstruction, excites inflammatory irritation in the contiguous tissue, preliminary to the effusion.

Discarding this explanation, we are compelled to resort to one of two hypotheses, either that there is a mechanical percolation or transudation of serum through the parietes of the over-distended vessels, or that the accumulation of fluid proceeds from diminished absorption, neither of which is sustainable. Transudation never takes place through the coats of vessels in the living state, and, though the lymphatics do operate feebly when the circulation is active or redundant, this alone will not account for the phenomenon.

As regards the veins, I am aware that a very different doctrine has, of late, been espoused. There are some who even contend that fluids as readily and habitually percolate the coats of the vessels, alternately received and expelled by mere physical im-

bibition and transudation, as if this were their chief office. But can there be a notion more mechanical and absurd in relation to an operation of the living body? Did it really take place, the veins would be a common sewer, into which were emptied whatever is vile, or feculent, or deleterious coming into contact with their surfaces, and of the disastrous consequences of such matters getting into the circulation, we need not now be told. Caused in this manner, dropsy should occur wherever there are veins, and in the ratio of the vascularity of the part, especially in the mucous, as of the tissues, the most richly endowed with this property, which is contrary to fact! There are some, indeed, though very vascular, as the muscular, which never effuse. As the causes of haemorrhage, so do those of dropsy operate. Whatever may be their nature or location, it is on the capillaries of certain membranes alone susceptible of such effects, and never through the great vessels, as now maintained. The mucous is the chief seat of the one, and the serous of the other, and in this do the two processes chiefly differ in this respect.

Notwithstanding all I have said in support of the doctrine of inflammation, I shall now suggest, as plausible at least, that it is not inflammation only which induces genuine dropsy. Essentially associated with this condition, the vessels, however, assume a sort of secretory power by which a peculiar fluid is elaborated, in most instances very distinct in its properties from the serum or any other of the constituents of the blood. It was shown, in the early part of this inquiry, how infinitely varied is the hydroptic effusion, which, being thus different from serum, must be the result of a secretory action. To this process can only be ascribed new products or changes, where the elements are supplied by the blood. Facts were heretofore related by me which show the great influence of the nervous system in the occasional production of the disease, and we are aware of its absolute control over the secretory processes, from which consideration, I think, the hypothesis derives no immaterial support.

This faculty in the vessels often endures long after the phlogistic state has subsided, whence it was derived. Cases are without number where the effusion has gone on copiously with the weakest pulse, cold surface and general debility, and, on a post-mortem inspection, the serous tissue has appeared pallid, relaxed and destitute of every vestige of inflammation. The

same holds as to the mucous surfaces, in proof of which I shall cite diarrhœa, leucorrhœa, gonorrhœa, bronorrhœa, where the discharges are far more profuse than even in the inflammatory stages of these affections.

Did the effusion in dropsy depend entirely on the phlogosis, they should simultaneously cease, which is not the fact. The opposite, indeed, is true, so far as regards certain cases at least, that the cure depends on exciting a new inflammation in the tissue, of which hydrocele affords illustration.

Like haemorrhage, it appears that dropsy is also originally of a passive nature. Cases of this kind are mostly connected with extreme visceral derangements and the general aspect of a bad habit of body. Possibly, under such circumstances, there may be, with general debility, some local irritation, productive of the effusion. But in other instances, especially of anæmia, no such cause can be suspected, and hence it is conjectured that it is owing to a certain state of the circulating fluids. In general constitutional depravations, the blood sometimes undergoes great changes—always, however, from previous disorder of the solids, losing nearly the whole of its lymph and much of its red globules, with a correspondent increase of serum, which also, from a diminution of its albumen, is thinner. Thus conditioned, it is not unlikely that a greater facility to effusion prevails, or, to use the language of Andral, “in consequence of the diminution of cohesion, the molecules having lost the force of aggregation, the thinner portion, the serum, exudes.” Be this admitted, which I am entirely willing to do in relation to certain cases, I think that much is also to be ascribed, in accounting for the hydropic disposition, to a peculiar state of the extreme vessels themselves, in which we have another analogy to haemorrhage. Evidence of the passive nature of the disease is supplied in the œdema of the final stage of pulmonary consumption, and still more conspicuously in paralytic limbs, which often become exceedingly swollen. The internal exhalents, in the latter cases, are in the same state as the external in colligative perspirations.

From the whole, we may conclude that either an excited and full, or an emptied and enfeebled circulation may be productive of the hydropic effect. To do away the first of these conditions nature is disposed, as a salutary expedient, to cause an haemorrhage, or to resort to some species of extravasation, and under

the circumstances stated formerly, to a serous effusion. But in states of exhaustion her powers are so impaired, that she is unable to resist the escape of these fluids, which, as it were, leak out of the exhalents. We have, in this way, hæmorrhages in the advanced stages of low fevers, and dropsical accumulations in other diseases of expended vital energy. As was at one time inculcated, there seems to be a very close analogy between hæmorrhage and dropsy in many respects, each being active or passive, and that the old notions on this subject have been too hastily exploded.

To passive hæmorrhages especially, the resemblance, in some instances, approaches nearly to identity. I have, indeed, witnessed the occurrence simultaneously of serous and sanguineous extravasations from different portions of the exhalents. Thus, while in some one cavity there would be watery eliminations, the skin was purpled by large deposits of blood. Nor are such exhalations confined to the surface. In a child that I attended with the late Professors Physick and Dewees, I saw a sanguineous dropsy, if I may use the phrase, both of the thorax and abdomen, the skin at the same time being purple,—all brought about by protracted cholera infantum, inducing previously an extreme vitiation of system.

Most European writers, till lately, have contended that dropsy has invariably its origin in debility, and is associated in all its stages with what they denominated a cachectic condition. Deduced from this opinion, their practice was made up of the stimulating and tonic remedies, and on the whole proved lamentably fatal. But we, on the contrary, acting on another view of the character of the disease, have, perhaps, proceeded too far, and here, as probably in most other instances, truth will be perceived more in a medium between the two extremes than is usually supposed.

—“Sunt certi denique fines.
Quos ultra, citra que, nequit consistere rectum.”

Closing this introductory part of the subject, it remains very briefly to point out the principles and remedies suited to the management generally of dropsy. The disease, I have shown, may be the result of inflammation in several gradations of violence or of a state of extreme feebleness, descending into absolute

passiveness. Conditions so various obviously demand a very different plan of treatment, and to the disregard of which consideration, the failure of our curative endeavours is, in no small degree, to be ascribed.

To evacuate the collection of fluid is commonly, though, I think, erroneously, held to be the leading indication. Before entering on the execution of this design, we are carefully to ascertain the state by which the effusion was produced and is maintained. Not many years ago, the fact was more formally proclaimed by Blackhall than had previously been done by Cruikshank and Wells, that the urine affords a less uncertain means of discrimination, in this respect, than any heretofore possessed. 1. Thus, he avers that in dropsies of high excitement, it will coagulate by heat, or nitrous acid, like the serum of the blood. 2. That dropsy, with visceral unsoundness from congestion, induration, scirrhosity, &c., is characterized by urine, scanty and high-coloured, loaded with red sediment, and depositing nothing on the application of heat. 3. That in dropsies of feeble action, the urine is scanty and pale, not coagulable, and deposits no sediment.

These are the principal distinctions, though, like all medical generalizations, are subject to exceptions, and, of course, must be received with cautious limitations. Enough, however, has been accomplished on this point to awaken attention, and to induce further inquiries to refute or confirm his observations.

There is, however, still much uncertainty on the subject, arising mainly from the discrepancies in the reports of those who have engaged in the investigation. By some it is alleged, that coagulable urine is confined to effusions in the cellular membrane, induced by cold, scarlatina or mercury—it rarely, or, perhaps, never occurring in ascites—and by others to those of the pleura or pericardium. Bright maintains that it is exclusively the product of the advanced stage of those lesions of the kidneys which I noticed under a preceding head. The best opinion seems to be that it is a common incident to inflammatory dropsy indiscriminately. Even this, however, is denied by Prout, who considers it as expressive of irritation only, and though it may be taken with other evidence of the state of the case, it does not denote the preference of any particular remedy or plan of treatment. My own views are pretty much the same, or that conceding to it all the value claimed, it is only a solitary indication, and I suspect

it will be very difficult to bring us to exchange the pulse, and the other established sources of diagnostic information, for a urinal as a guide to the detection of the condition of the system in dropsy or any other disease.

In the inflammatory form of dropsy our aim should be the reduction of action, and the most prompt and certain means of attaining the end are blood-letting, general and local—purging by the saline laxatives—the gentle febrifuge mixtures—the lowest diet—cooling drinks and a state of rest, with whatever else is calculated to temper excessive excitement, and to re-establish a just distribution in the circulation, necessarily affected by partial congestion.

Having accomplished so much, and the effusion continuing, a resort may be had to mild emetics, purgatives, diuretics or rather the *sorbentia*,* diaphoretics, and sometimes to mercury.

It is to be recollected that, in dropsies of less activity, while general depression of the vital powers, and of the circulation, too, is apparent, there may be topical irritations and irregular concentrations of blood. The exhibition of weakness, therefore, which is often muscular chiefly, ought not of itself to dictate the practice under such circumstances. On the contrary, it becomes our duty to be vigilant of these conditions, and to apply the measures fitted to the subversion of them, which are mainly those already enumerated, particularly local bleeding and vesication.

In reference to the evacuation of the fluid in this, the same class of means is equally appropriate as to the preceding state of the disease, with this difference only, that, in regard to some of them, they should be more energetic, particularly the sorbentia and purgative.

But we have a hydropic condition so unequivocally characterized by debility as to preclude, in any stage, the use of means which might increase exhaustion, and here, in circumstances nearly desperate, our resources are narrowed down to cordial and stimulating sorbentia, with tonics and other measures of invigoration.

Even, however, when we succeed in removing the effusion, it will sooner or later return, unless that pathological condition

* Medicines which promote absorption, in contradistinction to diuretics, which increase urination, the one acting on the lymphatics and the other on the kidneys.

giving rise to it is completely overcome. It is, hence, of the last importance that it be detected and redressed, till which, indeed, little or nothing is done towards a cure.

“Sublatâ causâ, tollitur effectus.”

This is truly an occasion when, the cause being removed, the effect will cease. The remote causes of the disease, we have seen, are numerous and diversified, consisting, however, for the most part, of lesions of structure, exacting different and even opposite modes of treatment. Most of these, as distinct affections, have already engaged our attention.

What hitherto has been stated applies to dropsy generally. The inquiry on which I am now to enter relates to the several varieties or modifications of the disease, as arising from location chiefly, and, first, of

A S C I T E S.

By this is meant a dropsy of the abdomen, a term derived from the Greek *askos*, signifying a water bottle, no doubt from a supposed resemblance of the protuberance of the belly to that utensil. By some writers, particularly the older ones, all the effusions within the abdominal cavity are embraced under this term, as those of the uterus, the ovary and other encysted dropsies. But I shall restrict it to the expression of the effusions within the peritoneal sac, which might be better entitled *hydrops peritoneii*.

The approach of ascites is varied by the condition of things of which it is the consequence. It sometimes comes on suddenly, as an acute original affection, so far, at least, as depends on a primary distinct inflammation of the abdominal serous tissue, and here the early symptoms are essentially the same as those of peritonitis in its feebler or subacute form. But in chronic cases, symptomatic merely of some organic lesion or more general dis-temperature of body, and which are much the more common, the progress is slower, and, in some instances, so gradual as scarcely, for a considerable period, to attract notice. The effusion here is almost uniformly preceded by the aspect of cachexy, sallow or waxy complexion, the integuments flabby or dowy, the skin unperspirable, the bowels costive, the urinary discharge

deficient and loaded with lateritious or other sediments, the appetite and powers of digestion impaired, marked by flatulency and sour eructations, and there are general listlessness and disinclination to motion. These precursive signs are, in the process of time, followed by unequivocal manifestations of the occurrence of the effusion, among the earliest of which is, often, swelling of the feet and ankles, attended by some shortness of breathing. Not long afterwards the belly begins to bloat, usually at first in the epigastric region, gradually extending over the whole abdomen with an increase of anasarcaous swellings. The intumescence is represented as commencing just above the pubes. But to this point I have directed a very careful attention, and am satisfied that this is wrong. From the resistance of the abdominal muscles, the protuberance slowly forms in persons of vigorous frame.

Much aggravation of the preceding symptoms progressively takes place. The surface becomes more dry, even husky—there is burning in the palms of the hands and soles of the feet—constipation is greater—urination very small—intense, unquenchable thirst sometimes prevails—dry cough arises, with very embarrassed respiration, especially in a recumbent posture or upon any exertion, particularly ascending stairs or any acclivity. The swelling of the abdomen is now, in some instances, enormous, extending from the pubes to the ensiform cartilage, the weight of which is very oppressive, especially in the side on which the patient lies, the opposite one being somewhat relaxed. Effusions going on simultaneously in the cellular tissue, much of it may become filled, as well as the thoracic cavity, forming what is called universal dropsy. The pulse, which, in the commencement of the more acute forms of the disease, is active, corded and accelerated, with sometimes considerable fever, is here the reverse, or weak, and little or no indication of the febrile movement exists. Towards the close of the case, however, we shall mostly find it diminutive, hard and accelerated, with decided evidence of hectic irritation, or full, soft, compressible and very irregular, owing to general disturbance of the animal economy, from the amount of serous deposits interfering with the natural order of organic action. Extreme debility and emaciation hence-forward ensue—the bowels give way—gastric oppression, as well as dyspnœa, painfully augmented—the tongue becomes red and

polished—aphthæ appear in the mouth and throat, with difficulty of deglutition, and finally death, from absolute exhaustion, or by syncope in an attempt to move, or by suffocation.

It is not, however, to be inferred that the disease is uniformly so violent, or presents such a complication of character. Frequently it is milder and limited chiefly, or perhaps entirely, to the abdomen, constituting simple ascites, and then, divested of many of the extraneous symptoms enumerated. Yet, commencing, as it may, where its progress is lengthened, it usually assumes, sooner or later, the aspect I have described, and which, in many instances, originates with it.

Dropsy of the abdomen suddenly occurring, is to be assigned to all those agencies by which acute peritonitis is ordinarily excited. But it is usually more gradual in its accession and development, and though still the result of inflammation of the same tissue, this is brought on by a set of causes somewhat different, operating with comparative slowness and feebleness. Derangements of the central organs, the primæ viæ, the kidneys, the uterus, and particularly the liver and spleen, may be deemed the most common and prolific sources of this dropsy. Certain states of the heart and great vessels, as well as of the blood, do, however, also occasion it, though seldom, from the comparative rarity of the cardiac lesions, at least in this country.

From the account I have given of ascites, it would seem so distinctly marked, that little need be said as to its discriminating signs. But there are some cases with which it may be confounded; among these, pregnancy has been mistaken for it, and acting on an erroneous view, very disastrous consequences have sometimes occurred. It will, therefore, be right, in such embarrassment, to proceed cautiously, and more especially as attempts are often made to conceal illicit pregnancies under the simulation or disguise of this disease. The most distinctive criterion of ascites is, perhaps, the fluctuation of the water, which becomes audible by pressing the left hand on one side of the abdomen, and striking on the other with the right. But this is not infallible, and particularly if the water be encysted. We must then resort to a general inquiry into the history of the case, and so different are the symptoms which attend the inception and advancement of the two states, that little ambiguity can remain. Contrast carefully the peculiar phenomena of pregnancy with those of ascites,

such in the first, as the morning sickness, the swelling gradually proceeding from the hypogastric region upwards, the state of the mammæ, the areola around the nipple, and, in the second, the reverse progress of the intumescence, the hydroptic aspect, &c.

Easy of determination as this point would appear, it is sometimes different, and particularly when the abdomen is distended by an enormous collection of the liquor amnii. Even the most skilful and experienced may then be embarrassed.

On one occasion while I was waiting below for the arrival of an eminent accoucheur, who wished my advice on the propriety of tapping a lady, under an impression of her having dropsy, she retired to her chamber, and in a few minutes was delivered of a child.

Lately I read, in an English medical journal, of a similar instance, where Sir Astley Cooper was called to perform the operation, in which, while he was making the preparations, labour came on, and saved him the mortification of such a mistake. Probably, in both of these cases parturition was excited by the alarm and agitation of the proposed operation. The value of auscultation, now much practised by some of the accoucheurs, I think has been overrated. What the stethoscope can determine in regard to the movement of the fœtus, better than the ear itself, or the hand, I am unable to discern. Blunders, and some ludicrous ones, I have known to be committed by confiding in it. Not long ago, a lady of this city who was thus scientifically *explored* in the morning and pronounced free of pregnancy, was delivered of a full-grown child the night of the same day.

Even more perplexing are the cases where dropsy is united with pregnancy, which sometimes happens. Chief reliance here, as well as under all circumstances, is to be placed on an examination *per vaginam*, which, if gestation be advanced, such are the changes in the os tincæ and neck of the uterus as to prove very satisfactory.

Tympanitis is another affection resembling ascites. But they vary in this, among other respects, that in the former those characteristics of dropsy just mentioned are absent, and the abdomen is more tense and elastic on pressure. The air, too, being in the alimentary canal, frequent belchings and other indications of flatus exist, and sometimes colicky pains. The greatest embar-

rassment, perhaps, however, arises as to a species of abdominal dropsy itself. My allusion is to the encysted cases, some of which very closely resemble genuine ascites. The best mode of distinguishing them will hereafter be indicated.

Mostly it will hold true, that in proportion to the standing or duration of the case, and its complication with visceral derangements or more general pravity of system, is the difficulty of the cure. Being the result merely of recent peritoneal inflammation, it proves comparatively of easy management. In aged people it is, under all circumstances, very intractable, and what is extraordinary, even more so in children, who, indeed, very seldom recover from it. This observation, which I once thought peculiar to myself, I afterwards found fully corroborated by the experience of the late Professor Physick.

The favourable symptoms are, freedom of urination and regular alvine discharges, soft perspirable skin, a subsidence of febrile irritation, the removal of visceral obstructions, and, as then usually happens, an exchange of a sallow, cadaverous, for a more natural complexion.

Certain phenomena, on the contrary, always denote imminent danger, as great emaciation and debility—constant dyspnoea, with a tendency to syncope—dry, florid tongue—aphthæ of the mouth or fauces—dysphagia and colliquative diarrhoea.

Dropsy of the belly may be considered, on the whole, as a most formidable affection—when once established is exceedingly unrelenting, and, unless there is integrity of constitution, will sooner or later prove fatal. These, at least, are the safest views by which our prognostications can be conducted.

Examinations *post mortem*, in this disease, exhibit, besides the accumulation of fluids which infinitely vary in quantity and quality, great diversity of morbid appearances in the solids. These, however, are to be regarded rather as the causes than the effects of the disease. Dropsy itself can seldom produce any structural lesions. The peritoneum, whence the effusion proceeds in ascites, is usually found, in acute attacks, delicately inflamed, and, in chronic cases, more or less thickened and otherwise changed, sometimes studded with tubercles or hydatids, or its surface granulated, and the liver, spleen, pancreas, &c., variously disordered. That the hepatic condition, called *cirrhosis*, is most apt to induce ascites, was previously mentioned as a

prevalent opinion in Europe. Whatever may be the fact there, I am sure it is not so in this country. With us it is the overgrown, hypertrophied, indurated viscus, the product of miasmatic influence, with which it is most commonly associated. Cirrhosis, indeed, is, I think, not frequently seen by us.

The mesenteric glands, particularly in early life, are sometimes both enlarged and hardened—the bowels, for the most part, flabby and relaxed, though occasionally having a very different aspect, or phlogosed or ulcerated, with adhesions among themselves or to the peritoneum, and the stomach sometimes, though rarely, scirrhosified at the pylorus. The kidneys, in some instances, are much and diversely altered in structure, each of which states may conduce to this effect. As to *Bright's kidney*, so called, I have really not perceived the intimate and predominant influence of it, in the production of this dropsy, as at present alleged by many. Even when it exists, which is seldom, effusion is by no means a constant result. Diseased states of the uterus sometimes exist, and to great extent. The heart and great blood-vessels are met with, occasionally, in degrees of disorganization of every kind. Yet it is no less true that, in some anemic instances, no essential organic lesion or change can be detected in any part of the solids, the blood and capillaries seeming to be only affected.

It is scarcely necessary, after the ample discussion which the general pathology of dropsy has received, to notice that of ascites particularly. The doctrine now mostly entertained presumes that the disease, in its ordinary and genuine shape, is the direct effect of peritonitis, which may be a primary or secondary affection—the latter occasioned by a reflected irritation from one or more of the diseased viscera enumerated, on the secerning membranes. For the most part it is of the second species, and subacute or chronic. No doubt it does, sometimes, follow the acute, though, I believe, where it is comparatively weak and delicately diffused. Extravasations of coagulable lymph, or the secretion of pus, is the product of peritonitis under different circumstances. But, while this is conceded, it is still undenialble, to my mind, that ascites, in common with all other dropsies, may take place, if not merely from debility, by such a change in the vital properties of the exhalents, or in the constitution of the blood itself, as to permit the serous portion to escape,—in this respect conforming to

haemorrhage, and hence, in order to successful practice, we must contemplate the disease in each of these states.

Being satisfied, however, on an adequate examination, of the active form of the affection, it would be a corollary from the views I have indicated of its pathology, to institute a practice having a regard to the phlogistic irritation of the peritoneum and other organs which may be implicated. Great mischief has undoubtedly accrued by mistaking the indication at this stage of the disease, and hence prematurely resorting to the harshest means to evacuate the fluid, when an opposite line of conduct should have been adopted to overcome the condition, of which the effusion is merely an effect. This error I shall endeavour to avoid.

Fortunate is it that, by proper discrimination, remedies may be selected which, while they reduce the force of the circulation, and, in other modes, conduce to our main design, have also a tendency to invigorate the process of absorption. As the former is emptied or depressed, so are the energies of the latter increased, especially in dropsy. This is a practical principle of the highest importance, taught and published by me more than thirty years ago, and long before by Professor Rush, to the first recognition of which M. Magendie has arrogated to himself the merit, without any acknowledgment to his predecessors. Governed by this principle in the treatment, those means are to be resorted to calculated to attain these ends.

Notwithstanding the former prejudice against it, venesection is indispensable. As in all other instances, however, its use is to be tempered by a sound discretion and a due regard to the state of the case. The pulse in the early stage of ascites, such as I am contemplating, is hard, tense and corded, and the blood which may be drawn will be not less constantly found with the signs of a considerable degree of inflammation. To these may be added a hot and dry skin, parched tongue and fauces, great thirst, with many other phenomena of the febrile condition. As long as such a state of things prevails, the bleedings may be repeated, and, sometimes, no inconsiderable portion of blood detracted. Copious haemorrhages, spontaneous or from wounds, having been immediately followed by the most beneficial results, the fact has been assumed as the basis of practice. Among other instances of the kind which might be cited, I had, some years

ago, reported to me the case of a man labouring under inveterate dropsy, who accidentally received a deep cut in the thigh by the scythe of a reaper, from which he lost an immense amount of blood before the vessel could be secured. Exhausted, however, as he was, absorption commenced most rapidly, and, in a very short period, he entirely recovered of the dropsy.

That venesection should here be successful, is quite conceivable. Dropsy of this kind, as I have before stated, consists in some *altered action* of the vessels dependent on inflammation, which, by the sudden impression made by a large loss of blood, may be subverted, and the natural or healthy condition restored. No one remedial process is more revolutionary in its character than venesection, when profuse, or has such claim to the title of alterative. Yet on the lancet we are not exclusively to rely. As aiding in the intention, a resort may be had to any or all successively, of the subsidiary or co-operating means. The abdomen being tender, with other evidences of peritoneal or other visceral inflammation, topical bleeding frequently renewed, followed by fomentations and ultimately vesication, has proved exceedingly effectual.

Not true is it, as has been claimed, that sanguineous depletion is a new remedy in dropsy. From our records it will be found as old nearly as medicine itself. By Hippocrates it was occasionally used, by Galen, also, and subsequently by the disciples generally of the school of Alexandria, when our science sought refuge in Egypt during the dark and troubled ages of Europe. It had supporters in more modern times in Riverius, Botellus, Etmuller, Stahl and Grapengeengeisser on the continent—and in Britain it was countenanced by Mead, Monro and others.

To such an extent, indeed, was bleeding carried at one time in France, in this as well as in most other diseases, that, it is said, the character of Sangrado was introduced by Le Sage, in his *Gil Blas*, to put down, by all the powers of ridicule and sarcasm, the abuse of this particular practice. Never, perhaps, entirely exploded, it seems, however, for a certain period, to have lost confidence, when it was revived, mainly by the late Professor Rush and his disciples, and has now become everywhere fully re-established.

The preceding treatment has mainly for its object the cure of that pathological condition which may be deemed the immediate

cause of the effusion. Next, it becomes important to evacuate the fluid which, confined in a cavity, operates in *error loci*, as an extraneous irritant, and, by continuance, revives that state which had been previously overcome. This is one of the modes, probably, in which ascites is perpetuated. The analogy of hæmorrhage may again be appealed to as furnishing an illustration. Coming from the nasal or hæmorrhoidal vessels, the loss of blood is often harmless, or even salutary, while equally or more pernicious than the hydropic effusion would it prove, were it to escape into one of the occluded cavities of the body. No doubt, in some instances of dropsy, the parts seem in a great degree to be reconciled to this foreign or adventitious encumbrance, and they, as well as the system at large, suffer little from it, though more frequently otherwise, and its removal is demanded.

Let me here repeat a remark which I first made many years ago, that the common notion of the fluid being taken up by the lymphatics, conveyed into the circulation, and thence eliminated by the kidneys, is in part, at least, erroneous. To what precise extent the lymphatics and kidneys are concerned in the process of removing the fluid, I shall not now pretend to determine.

That it does not uniformly enter the circulation, I think is quite certain. Gallons of it are sometimes evacuated in a very short time,—and were such an amount of foreign matter to get into the blood vessels, if it did not speedily destroy life, it must materially disorder the action of the heart and vessels, as well as other functions. But no such phenomena occur, the pulse, on the contrary, being more languid and empty under such circumstances, which is the reverse of what should happen, as by this repletion it ought to be voluminous, turbulent and struggling, as when fluids are injected into the veins.

My attention having been for some time directed to the subject, numerous opportunities I have had of remarking, that whenever the fluid is rapidly withdrawn in this way, the effects are very similar to those experienced from paracentesis. On one occasion, particularly, the case of a man with ascites and ana-sarca, from whom twenty two quarts flowed out in thirteen hours, he gradually became cold, collapsed, pulseless, and, despite of the most powerful stimuli, sank into death from exhaustion.

Not a few instances, all tending to the establishment of the same fact, have I witnessed alone or in consultation. Even

when life is not so immediately extinguished, peritoneal inflammation is very apt to follow, ending fatally,—in this further particular, corresponding with the well-known consequences of tapping.

It has been urged that the fluid is conveyed directly to the urinary bladder by a set of lymphatics, terminating in the cavity of that viscus,—long suspected by physiologists, and the existence of which is not destitute of plausibility.

Discarding, however, this conjecture as gratuitous or inadequately sustained, two other modes occur in which the transmission may take place. The cellular membrane is co-extensive with the corporeal structure, pervading even its minutest recesses, and is throughout permeable by the intercommunication of its reticulated texture. Entering this tissue at any point, the fluid may reach, by percolation, any and every part,—and, to all appearance, does sometimes escape, in dropsy of the interior, by the cutaneous surface, and conversely from that of the exterior into the internal cavities. Cases are recorded of the former, where the fluid was eliminated by the hand, foot, scrotum and umbilicus. Good cites several of the kind,—and I have seen an ascites thus emptied by the naval in a physician from Virginia,—by the stomach in a man,—and by the vagina in a woman,—patients in the alms-house Infirmary under the care of Professor Jackson and myself. Cellular dropsy, indeed, is so prone to run into the cavities, that it is a fact of very common observation, particularly in relation to the abdomen, and I have frequently seen on the sudden subsidence of œdema of the lower extremities, manifestations of hydrothorax or hydrocephalus.

But this explanation of the phenomena not proving satisfactory, may it not be referred to endosmos and exosmos, a mode of absorption lately revealed to us?

By this is meant a percolation of fluids from one cavity into another, the mode not clearly understood. That such takes place out of the body in dead tissues, cannot be doubted, and the same process is inferred to be incidental to the living state. Disbelieving the latter, or at all events having seen no demonstration of the fact, I must continue to think the hypothesis I have offered of depuration through the cellular membrane as better made out than this or any other, and, therefore, entitled to greater confidence.

As a question exceedingly interesting in speculation, and having, perhaps, an important practical bearing, it assuredly merits a further and more careful investigation than it has hitherto received.

The circumstance having been noticed of ascites occasionally disappearing on the occurrence of spontaneous vomiting, emetics were at one time much prescribed. That they have proved advantageous it were not difficult to show by a recurrence to authorities. Especially are they favourably regarded by Sydenham, Boerhaave, Duverney, Monro, senr., Richter, Cruikshank, Lentin, Pinot, &c. Duverney and Monro, indeed, report cases cured in this way where tapping had been repeatedly performed. But no one, perhaps, bears stronger evidence in favour of the practice than the celebrated Sämmering, who declares that he has frequently seen the disease promptly yield to it alone, and which is substantially confirmed by Itard, a late and very respectable writer. Emetics, however, were here again and again repeated. Granting their efficacy as promoting absorption, which is contended for, I am still disposed to ascribe a part of it, at least, to their agency in correcting the state of the capillaries conducive to effusion,—exactly as we have seen them to operate in the suppression of hæmorrhage. But whichever view may be entertained of their mode of action, much discrimination is undoubtedly required as to their use in the early stage of the disease. The case having its origin in phlogosis of the peritoneum, vomiting can hardly fail to be detrimental while this condition lasts. Deterred by such an apprehension, I have very seldom prescribed them, and never except where there was an oppressed or disordered stomach, or much torpor of system, and general insensibility to the operation of other remedies, as I shall notice further hereafter.

Emetics, on the whole, have given way to some other classes of medicines, and especially to purgatives, which, indeed, seem to be called for, not less by their acknowledged powers of quickening absorption, than with a design of subduing vascular excitement, and overcoming the habit of constipation incident to the inception, and the immediate subsequent stages of the disease.

To evacuate the bowels thoroughly is a plan commenced by Hippocrates and continued to the present times. Too much cannot be said of this sound and highly beneficial course. Yet

in the choice of purgatives some care is demanded. By all the earlier writers,—and they are still much copied,—the drastic articles, or what are called hydragogues, were preferred. Medicines of this kind, however, are now known to be detrimental in this state of the disease, and are only admissible where the alimentary canal is torpid, the habit generally phlegmatic, without irritation or visceral disorganization. Better is it to resort, in the circumstances before us, to the saline laxatives, and especially to the tartrate preparations. Consecrated, as it were, by common consent to this purpose, is *crem. tart.* and *jalap*, the effects of the latter being mitigated when thus united. These articles are prescribed in the dose of a scruple or half a drachm of the former, to five, ten or fifteen grains of the latter, with a few drops of the *ol. carui* to prevent griping, and so repeated as to keep up discharges almost unremittingly from the bowels. Exhibited in this manner, the results in some cases are prompt, effectual, and even astonishing. I have seen in a few days the utmost intumescence and distension entirely removed by this remedy alone. It is, therefore, with the strongest emphasis, and in the highest tone of confidence, that I press it on attention. Never, I can truly declare, have I had more reason to be delighted with any course of practice, in any disease, than occasionally with purging by the combination to which I have alluded. Disagreeing, however, with the patient, or for any other reason not answering the purpose, we may substitute a mixture of magnesia and Epsom salts, which often proves very useful. Castor oil does equally so in some instances. The superior success of such articles can only be ascribed to the comparative mildness of their operation, by which they are rendered more appropriate to the probably somewhat irritable condition of parts.

Efficacious, however, as purging may be when properly directed, it does not uniformly succeed, and, in this event, it is customary to resort to the diuretics. By these is understood articles which, operating on the kidneys, promote the urinary discharge. An action of this kind can have very little effect in the cure of dropsy. Doing good at all, it must be by indirectly promoting absorption, from the reduction of the circulation, by lessening the quantity of the serous portion of the blood. It is by exciting the absorbents, whatever this machinery may be, lymphatic or otherwise, to invigorated efforts that any great advantage can be

gained, and we are in possession of a set of medicines with such power, the sorbentia, as they have been called, which are improperly confounded with the diuretics.

Not a little has been said of the antihydric powers of the vegetable and mineral alkalies, in a state of carbonate, though, of the two, the potash seems always to have been preferred. By the older physicians, and, indeed, they are continued to the present time as a domestic remedy, the ashes of a variety of vegetables were employed, particularly of the grape vine and the bitter herbs. Being, however, only operative from the alkali they contain, the carbonate, as now kept in the shops, has supplanted this crude article in regular practice. Dropsy, in which the potash is more particularly useful, is such as is connected with great depravation of the powers of digestion. Excepting this application of it, the alkali carbonated is very inferior to some of its combinations with the other acids, forming the neutral salts. Most of these have considerable powers, though there is one, the acetate of potash, which has been supposed to possess it in so great a degree as to be called *sal diureticus*. Notwithstanding its former reputation, I am not disposed to say much in its favour—the trials I have made with it having disappointed my expectations.

Eminently adapted to this case is the nitrate of potash. As commonly prescribed, in small doses, it is, perhaps, inferior to some others of its congeners, though as an evacuant of water it is not deficient. Its great utility is derived from the depressing power it exercises over the vascular system. The common objection to its use, that, when directed in adequate doses to make such an impression, it so disorders the stomach that we are obliged to discontinue it, may be in part obviated by giving it in very free solution. An ounce in two or three pints of water, sweetened and pleasantly flavoured, may be drunk daily. Combined with a very small portion of tartarized antimony, its value is enhanced in any marked activity of the circulation. This latter article, indeed, is too much neglected under such circumstances. More than any other is it calculated to subdue the force of vascular action, and in doing which it sometimes promotes absorption, and, I am persuaded, exercises, too, a salutary influence over the capillaries. Great confidence has been expressed in it by Frank, of Vienna, when thus administered.

Not the least important of the neutral salts is the supertartrate of potash—most practitioners speaking well of it, and many confidently. By some the tartrate of potash is preferred, though, from the almost identity of the articles, I should presume there can be no material difference in their effects. But the union of the tartrate, supertartrate and carbonate of potash, in nearly equal proportions, I have known to act beneficially, when the two former articles separately did otherwise: such are the results, occasionally, from apparently outré composition of medicines. It was a very favourite prescription of the late Professors Rush and Physick.

The dulcified spirit of nitre, when liberally given, may prove useful. We commit a mistake in directing too small a dose of it. Not less than two drachms, freely diluted, should be exhibited at once, and repeated several times in the day. Diminutive doses, in this application of it, are not of the slightest service, and manifesting any sensible effect at all, it is on the cutaneous surface. Nor is it undeserving of recollection that, when it does not pass off by either of these emunctories, it is very apt to kindle up a high degree of febrile excitement, which is an admonition to its discontinuance.

Diaphoretics are another class of medicines in this disease. Celsus speaks very favourably of sweating, and it was, indeed, at one time, a common practice. By advertiring to the state of the skin in dropsy, and the influence of it in keeping up the disease, we shall be led by these considerations to appreciate measures which operate on the surface. Beneficial generally, they are particularly so in the cases from cold, or repelled or ill-cured eruptions.

Many of the diaphoretics are employed, though, on the whole, I have found those into which an opiate enters largely, as the Dover's powder, to answer best. Monro praises a combination of opium and antimony. The following mixture sometimes succeeds well, repeated every two or three hours.*

* R.—Tinct. Theb. gtt., x.; Sp. nitr. dulc., 3ij.; Vin. antim. gtt., xxxx.; Aq. font., 3ii. It was originally given by me in one of the very first cases of dropsy I ever attended, merely as a palliative of some urgent distress. But, to my astonishment, the patient got well under its use. Not long afterwards, the late Professor Wistar was called into consultation with me, in another case of the disease, which I was treating successfully by the same means. As the remedy

By opium alone cures have been accomplished, according to Mead, Willis, Home and Heberden, not to mention some inferior names. But, whenever any very decisive utility accrued from its use, it appears that it was given in very large doses. My own experience does not enable me to say much of this practice with opium itself. But I can readily credit its utility independently of the direct testimony in its favour. Compositions in which it is a leading ingredient we know are so, and are not less aware of its decided control over all inordinate secretions or exhalations, including, in short, every variety of profluvia, and, above all, the discharge in diabetes, between which affection and dropsy a parallel might be run to a considerable extent. It were curious to determine whether, as in the former case, while diminishing the amount, it has also the power of changing the character of the urine in the latter disease, which I strongly suspect, and, if it be really so, it would go far to explain the superior efficacy of the opiate preparations in dropsy. Numerous other diaphoretics, however, are resorted to, and, among these, I am inclined to believe a warm infusion of the thoroughwort has strong claims to attention, especially in the acute and simple states of dropsy.

External means of exciting perspiration sometimes become necessary in very intractable cases. It was the practice of antiquity, particularly among the Romans, to effect it by covering the body with hot sand. Dampiere, the celebrated circumnavigator, relates of himself that, while on the coast of California, he was cured by the same expedient. He says, "I had been a long time sick of dropsy, a distemper whereof many of our men died —so here I was laid and covered all but my head in the hot sand; I endured it near half an hour, and then was taken out and laid to sweat in a tent. I did sweat exceedingly while I was in the sand, and I do believe it did me much good, for I grew well soon after." From the vapour bath I have certainly seen salutary impressions in those cases, above all, induced by cold, attended by sensibility of the abdomen and manifestations generally of

what was new in this application to dropsy, he expressed some surprise at my employment of it, and asked me whence I had derived the practice. Telling him that I had acquired a knowledge of its efficacy accidentally, as it were, he replied, it is not a little curious that, many years ago, the same happened to myself, and I have since prescribed it frequently and advantageously.

lingering peritonitis. Neither purging nor the other remedies are here proper or tolerated, and the former is very apt to create acute pain and probably heighten inflammation. The process of sweating having been commenced, it should be continued for an hour or more at a time, then intermittent and renewed till the experiment is fairly tried.

On the whole, I must say that I consider sweating as a more important means than it is generally held to be. Most absurdly has it been objected to, that on no principle can its modus operandi be explained. By sweating, it is truly alleged, there is only drained off the serous part of the blood, without removing any portion of the accumulated fluid. But we divert action from the internal to the external exhalents, and thereby prevent the further increase of the effusion—re-establish the healthy functions of the skin, so particularly deranged—and, sometimes, even succeed in promoting absorption.

The same objection applies to purgatives of such acknowledged utility. No more is done at first, by stimulating the intestinal exhalents, than in the former case—the circulating blood being only divested of its serum, without touching that fluid already deposited. But in consequence of the translation of action, before mentioned, further effusion is arrested, and, in time, the whole deposition may be taken up.

These are the remedies and the order of administration which I deem the best adapted to acute inflammatory ascites. Either originally, or becoming chronic, it, however, assumes an opposite complexion, and demands another description of means for its cure. The system here being reduced, venesection and its immediate auxiliaries are usually dispensed with. Exceptions, however, arise, and never should we allow ourselves to be deluded by the counterfeit appearance of debility. With much general prostration, there may be still local phlogosis without appreciable vascular excitement, in which condition the loss of blood, topically at least, becomes indispensable—to be followed by a succession of blisters to the abdomen, to remain on just long enough to irritate the skin. The latter are, sometimes, exceedingly beneficial in overcoming the remnant of the pathological condition giving rise to the effusion. Frictions over the same part with the camphorated mercurial or iodine ointment have,

of late, been much commended, and which I believe to be worthy of trial.

Now it is, moreover, that emetics may be more safely employed than in the preceding state of the disease, and with a fairer prospect of success. Yet I have rarely resorted to them, and must speak diffidently of their value. Certain it is that, whatever this may be, the active cathartics are greatly preferred by the generality of practitioners. Combinations of calomel with gamboge, or colocynth, or scammony, or hellebore, or jalap, or elaterium are principally selected. That they are productive of advantage in old and protracted, or originally feeble, atonic dropsy, there can be no doubt. The elaterium, which, for a time, was obsolete, has, since its revival, been much employed. But at present it is superseded by the elatin, its active defecated principle. The latter is usually directed alone, in the tenth of a grain, repeated every two or three hours till copious purging is induced, and proves a hydragogue of immense energy.

Croton oil is another article of this kind, the use of which has been restored with the strongest pretensions. Both of these medicines are recommended, as well by the facility of administration as by their extraordinary powers over the hydropic accumulations. The dose of the latter, when pure, is a single drop, which rarely fails to operate adequately.

Better, however, than any other prescription I have ever tried is the subjoined, in a tablespoonful dose every two hours till it purges freely.* That it will with any uniformity cure dropsy, I do not pretend to say. But as an evacuant of the fluid, it is most certain, prompt and effectual.

Belonging to the active hydragogues, is the root of the *Kahinha*, a plant bearing this title from South America, which has recently been introduced into the treatment of dropsy with such strength of evidence in its favour, that though I have not tried it, I think it deserves to be noticed. Either in extract or decoction it is given, of the former of which the dose is a scruple, and of the latter an ounce or more,—repeated from time to time till it operates freely on the bowels and kidneys.

Turning from this description of articles, I am to bring into view a set of the *sorbentia*, of indisputable utility, and among

* R. Pulv. gambog., gr. iv.; Elatin, gr. ss.; Sp. nitr. dulc., 3*i.*; Aq. font., 5*iv.*

which is the squill. There are several officinal preparations of it, the vinous and acetous tinctures, the syrup and oxymel, &c., though, perhaps, it is more commonly prescribed in substance as a pill, alone or variously united.

Digitalis is also of great value. Extraordinary as it may seem, it is best adapted to a reduced state of the system. As long as there is any activity of pulse, or considerable portion of general strength, it will prove disserviceable, and, sometimes, even positively detrimental. Nor is this opinion peculiar to myself. Withering, by whom the application of the article to dropsy was restored, states, "that in persons of tense fibres and great natural vigour of constitution, it seldom succeeds, while, on the contrary, if the pulse is feeble, the countenance pale, and the skin cold, it hardly ever fails to do good." This estimate of its properties has been confirmed, and the best practitioners now proceed pretty much on it in its administration. That an infusion of it is the most appropriate preparation to dropsy is a common and just opinion,—though either in substance or tincture it may answer very well. The annexed prescription into which it largely enters, has very extraordinary merit.* Generally, I direct of it a tablespoonful every two or three hours, though the dose and the interval of repetition require to be changed so as to be accommodated to the circumstances of the case.

Tobacco ought here, perhaps, to be mentioned. Confidently announced by Fowler, a respectable authority, as having great efficacy, it, as in most instances of a new remedy, was for a season exceedingly celebrated. The precise value of it I am not prepared to assert, having rarely prescribed it or seen it prescribed. The tincture is mostly used, of which the dose is ten or fifteen drops. Ferriar's prescription, so highly praised by him, is as follows.†

The Indian hemp, the *Apocynum Cannabinum* of the botanists, is at present attracting considerable attention, and much testimony might be collected in its favour. It is a powerful agent, occasioning nausea, vomiting, purging, sweating and diu-

* R. Infus. digital., 3vii.; Acid. tart., 3ij.; Sodæ. carb., 3ij.; Sp. nitr. dulc., 3j.; Tinct. scill., 3j.; Ol. menth., gtt. viij.

† R. Oxymel scill., Oxymel colch., Tinct. nicot., Sp. nitr. dulc., aa3j. The dose is a teaspoonful four times a day, and to purge every morning with cremor tartar.

resis, with extreme prostration. These distressing and even alarming effects have deterred me from its use, and hence my own experience is so slender that I decline expressing any opinion regarding its utility. It is directed in powder, pill, tincture and decoction—the latter, however, is preferred, made by boiling two ounces of the root in three pints of water to two, the dose of which is one ounce, repeated occasionally.

Colchicum belongs to the same class. Baron Stoïrk speaks well of it in “old and desperate cases of atonic dropsy.” That it is occasionally useful, the evidence is too strong to permit us to doubt—though I am inclined to believe that it is less suited to ascites than some other forms of the disease hereafter to be noticed.

No other indication are the preceding articles capable of fulfilling than merely to remove the effusion. But a series is now to be presented of another description, which, while producing this effect, are supposed, likewise, to be curative of the lesions occasioning the disease.

Mercury is deservedly at the head of this set of medicines. Yet, owing to its indiscriminate employment, it has probably done quite as much harm as good. Neither suited to the inflammatory nor the weak and leucophlegmatic conditions of the disease, it always acting adversely in such depraved habits, I have found it alone appropriate where there is integrity of constitution, though obstruction of the parenchymatous viscera or feeble membranous phlogosis may exist. Cautiously administered, it sometimes, under these circumstances, removes both the cause and the effect. Calomel or the blue pill, with the squill, or digitalis or colchicum, is often preferable to either article separately.

That iodine bears a resemblance to mercury in some of its leading qualities, particularly as a deobstruent and incitant to the absorbents, is a common opinion, and we are not without facts of its utility in dropsy. But I confess that I have been disappointed in all my trials of it—though, from its reputation, I am unwilling to discourage others to its further use. I have, indeed, long entertained the notion that it does not so affect the absorbents as to dispose them to take up fluids. Certainly I have never witnessed any such effect in dropsy. Different, however, is it in relation to the solids—it manifesting, pretty generally, a tendency, when long continued, to induce marasmus.

Governed, I presume, by the same analogical reasoning, the nitro-muriatic acid has been proposed with a similar design. But, useful as it may be in certain visceral affections, I have seen no satisfactory evidence of its quickening absorption to any extent, and hence distrust the report of its having, in this respect, proved of much service in dropsy, though, on one occasion, I derived decided benefit from it in a case complicated with a scorbutic diathesis, and, in another, where mercury had been abused.

Nearly the same estimate have I of the guaiacum, sarsaparilla, pipsisseway and their congeners—they being calculated rather to rectify vitiated states of system occasioning dropsy, or with which it may be associated, than to remove the effusion. But this is an important attainment, since the principal or even necessary cause being eradicated, the great difficulty is overcome. Confessedly the power of the first two articles over a variety of such contaminations is considerable, and I have reason to believe that the last has scarcely less of it. The popular titles of rheumatism weed and king's cure at least attest its efficacy in fibrous or muscular inflammations and scrofula, both of which are sometimes intimately connected with dropsy.

My course of inquiry has conducted me to that form of the disease where, to disorder of the digestive and nutritive functions is added extreme weakness, with every indication of cachexy both of the solids and blood, the one being flaccid and the other thin and impoverished of its crassamentum. As an evacuant of the fluid, I have known the tincture of cantharides, in large doses, to be here successful, and it is worthy of recollection that it is under such circumstances, and in this mode of exhibition, that it only evinces an agency of the kind. But the relief from it is temporary, and we must resort to remedies of more effect over the general pathological condition, of which, I fear, we have none deserving of any great regard. Much, I am aware, was formerly thought of a combination of the diuretics and tonics, and particularly of the mineral or vegetable alkali, with an infusion of the Peruvian bark, or gentian, colombo, quassia, camomile, &c. Except palliation, what can such a mixture accomplish? The aliaceæ and silaquosæ, variously prepared, are decidedly preferable, and sometimes the popular prescription presently to be mentioned has been found of real service, especially

in the case of drunkards, to which the articles entering into it are singularly well adapted.* But, on the whole, most is to be expected from the chalybeates—the best of which are the tartrate, the hydriodate and phosphate of iron—the last being incomparable in all feeble, leucophlegmatic, exsanguineous conditions, efficiently correcting the process of haematosiſ. Yet the tartrate, as more of a diuretic, is usually preferred.

It remains to notice the direct means of removing the fluid in ascites. This is done by the operation denominated paracentesis, for the best mode of performing which I refer to surgery. In the opinion of most practitioners it is admissible only where the distension is so great as to give pain, to disturb respiration and to make the case altogether more aggravated and uncomfortable. Early tapping, however, has been insisted upon by Fothergill, by Baker and other practical writers, and its propriety, perhaps, at present, is more widely recognized than formerly.

It seems to me, that the vessels being relieved by depletion, were the effusion removed, a cure might possibly follow, provided some remote cause did not endure. An analogy exists between ascites and hydrocele, each being an effusion from a serous tissue, and that a cure sometimes results from merely evacuating the water in the latter affection is indisputable. It was nearly the exclusive mode of the late Professor Physick of managing recent cases of the kind, and I have reason to believe with success. Nay, the accumulations within the thoracic cavity have sometimes been cured by precisely the same process. Yet it is not to be understood that I mean altogether to assimilate these affections, or to inculcate an equal degree of curability in them. There are, I am sensible, much greater obstacles as regards ascites than hydrocele,—though not of so formidable a character as to preclude all hopes from this expedient. Even, however, should a cure not follow, it may afford temporary relief and our medicines are apt to operate more kindly afterwards.

Extending the analogy of hydrocele, it was long ago proposed, and, indeed, actually tried, in some few instances, to inject the peritoneal cavity with a stimulating fluid, so as to excite such a

* Take of mustard seed, garlic, horseradish and centaury, each four ounces—of potash and iron filings each half an ounce, and hard cider three quarts. These are to be boiled together fifteen minutes, and the dose is a wineglassful every two or three hours.

degree of inflammation as to supersede the disposition to serous effusion. But all these experiments failed,—a state of things being induced far more serious than the pre-existing disease, eventuating disastrously.

Great debility having taken place from the long prevalence of the disease or in originally atonic cases, tapping is productive of brief mitigation only, and, moreover, often proves mischievous, accelerating death by removing the stimulus of distension, which, under such circumstances, is one of the chief props of vitality, or more remotely, by inducing a fatal form of peritonitis. Nevertheless, life is undoubtedly sometimes protracted by it, and it may not be uninteresting to learn how often, in certain instances, the operation has been repeated. Many cases might be cited in which it was done forty and fifty times on the same subject. Good has made a collection of such,—one where it was performed ninety-eight times in three years,—another, twenty-four times in fifteen months,—and a third, a hundred and forty-three times in a period not stated. Excepting, however, the second case, the quantity of fluid drawn off is not given, in which it amounted to one hundred and sixteen gallons in the aggregate.

My own experience supplies several instances scarcely less remarkable as regards both the number of repetitions and the amount of the fluid. Yet it is true that the operation mostly proves nugatory or fatal, partly to be referred, however, to the injudicious applications of it. To be of service, I repeat, that it ought to be early resorted to, and only in cases exempt from constitutional or visceral deprivations of any extent, at least, with the expectation of any permanent benefit. It is not, however, a little curious that the danger from the operation attaches nearly altogether to the first time of its performance. As well as I can recollect, I have scarcely seen a case where, on the subsequent repetition of it, any thing bad resulted, which lends credibility to the reports of the number of times in which it is said to have been performed with impunity.

On this subject there is a fact of some interest to be communicated. Finding that cures followed the frequent evacuation of the fluid in hydrocele, by acupuncture, the same process has been applied to ascites, and, we are told, with encouraging success. The superiority of this over paracentesis, is alleged to consist in so little injury being done to the peritoneum, that no

appreciable inflammation has ever ensued. We have tried the practice in this city. The water, in some instances, was entirely removed by it and in a short period, while in others not a drop escaped, as in two cases of my own, though forty needles in each were introduced. Disappointments of this kind are to be expected from the occasional thickness and viscosity of the hydroptic fluid, it being sometimes so much so as not to pass even through the canula in tapping, and this forms one of the leading objections to acupuncture. Nor have I heard of any cure from it in this city.

Before resorting, however, to either operation, it will be right to try the effect of a large blister to the abdomen, which I have known in two instances to prove effectual.

The first of these occurred in a maiden lady somewhat advanced in life, attended by the late Professor Wistar and myself. Every measure used having failed, and the distension being exceedingly oppressive, we determined on tapping the next day. But, of her own accord, an immense blister was applied in the evening, and at our next visit we were astonished to find the fluid evacuated, it having leaked through the skin of the abdomen to such an extent as completely to have soaked her bed. Exactly such a case is reported by Professor Caldwell, of the Louisville College, and with which I became acquainted from another and equally authentic source.

Not easy is it to account satisfactorily for the mode in which a blister operates under these circumstances. But similar discharges have, sometimes, spontaneously taken place, as formerly mentioned, probably referable to percolation through the cellular texture.

HYDROPS SACCATUS VEL HYDROPS CYSTICUS, OR ENCYSTED DROPSY.

By this is meant a collection of water in sacks or cysts attached to or imbedded in some of the abdominal viscera. The ovaries, however, are principally liable to it, and hence I shall notice it in these organs particularly. Nearly always one of them only is affected.

HYDROPS OVARII.

Great confusion exists in the history of ovarian dropsy, proceeding as well from its own diversities as confounding other morbid conditions of the ovaries with it, and especially phlegmonous inflammation, ending in abscess or some other degeneration. Its commencement is usually obscure, and it advances slowly, creative of little or no uneasiness for a length of time, and often, indeed, eludes suspicion till the protuberance is observable. Early, however, in some instances, pain is experienced in the part, accompanied by irritative fever, and the progress then is far more rapid—while, on other occasions, it does not reach its height for several years. The case being at all developed, the tumour, which is in and rather above the iliac region, can be usually felt and seen. In this state it may remain nearly stationary for an indefinite period, interfering sometimes very little with the comfort of the woman or her capacity for procreation. But where it is of a more active character, or the organ deeply affected, the swelling increases till the whole abdomen becomes as large as in the last stage of utero-gestation, to which it bears a strong resemblance. Even then a tolerable share of health may continue—though a general distemperature is more apt to supervene, attended by hectic fever, which exhausts strength and leads to a fatal issue.

No period of adult life is entirely exempt from this affection. I have seen it in girls—in single and married women—in those who have been fruitful, and otherwise. But, I think, it mostly occurs about the season of the cessation of the menses—probably owing to the irritation which the whole uterine system in itself and its connections suffer at this period, and, in some instances, of a malignant character.

As immediate causes of it, hydatids have been assigned by some, while others maintain that it really consists in an exorbitance of these parasites. Those of the former opinion hold that, as extraneous irritants, they serve only to worry the adjacent secerning surface into effusions. Be this as it may, though I shall presently more distinctly express my doubts of their being at all concerned in the affair, it is more obviously the result of blows or falls, or any injury inflicted on the region of the ova-

ries, or the more ordinary agencies of inflammation of these organs or of their serous envelope. But it sometimes comes on without any appreciable cause whatever.

To distinguish these cases from ascites, we must attend to the following circumstances. It is usual with the latter to be preceded by a peculiar diathesis, or hydropic condition, and the swelling is gradually and equally extended over the abdomen, while at the same time, there is more or less oedematous affection of the extremities or elsewhere, and particularly the face. In ovarian dropsies, on the contrary, these signs are absent, and we have afforded some positive and peculiar indications, such as the swelling being mostly local and prominent, inclined to one side or part of the belly. It is also said to be movable, when the patient is placed on her back, and by passing the fingers up the vagina, the os tincæ is found to move with the tumour. Moreover, little or no thirst or fever usually exists, and the urine is neither diminished nor sensibly changed, and menstruation continues, when one organ is only affected, which it very rarely does in ascites.

There are other affections bearing such a similitude to it that they may be confounded, and among which is ovaritis, tending to suppuration. But here the pain is violent, sometimes even agonizing, throbbing or pulsatory, with high fever, and the career of the case is infinitely more rapid and decisive. Tumours are, however, sometimes of a very gradual formation, and without any acuteness or pain, ultimately attaining great size, and these prove exceedingly perplexing. Tumours, also, of an adventitious nature, occupying the same position, are liable to be mistaken for it, and to come to a just conclusion, the nicest examination is often demanded. Even this, however carefully conducted, will not always succeed.

I once attended a lady with Dr. Physick, who was placed under our care by two very skilful practitioners of one of our large cities, for ovarian dropsy—and on a very thorough investigation of the case, we were satisfied of the correctness of their opinion of its nature. But on a post-mortem inspection, some months afterwards, when she died, it was found that we all had been entirely deceived,—the affection consisting of a mass of the omentum, of a tumoroid condition, with effusion into the peritoneal cavity, and the ovaries perfectly sound.

Many examples are recorded of mistakes of this kind, among which are two committed by a surgeon of Edinburgh, who, operating to extirpate a supposed ovarian tumour, discovered that there was only a collection of flatus in the colon in the one, and in the other a deposition of fat. We have an instance also, where, in tapping for this dropsy, an immense lodgment of faeces in the colon formed the tumour,—a second, in which it consisted of an overgrown liver, and a third, where it was agreed by a consultation of surgeons to cut out the ovary, a child was actually born before the appointed day for the operation. As to the discrimination from pregnancy, I have nothing to add to what was said under a previous head.

To distinguish the varieties of this dropsy itself, dependent on hydatids, or otherwise, is utterly impossible.

Taken in the commencement, where it arises from simple inflammation, the case may be frequently arrested or cured. But permitted to advance to the production of an abscess or of other structural lesions, it almost uniformly proves unrelenting, and equally so when caused by hydatids. Those serous effusions constituting ovarian dropsy properly, are less intractable, and even when not relieved, may endure with a tolerable existence for a great length of time. Frank has given us a case which, commencing at thirteen, was protracted to the age of eighty-eight years. There are now in this city two women, still in very good health, though prodigiously distended, in whose cases I was first consulted more than thirty years ago. Yet such instances are rare.

From the vague notions hitherto entertained of the nature of the affection, very different appearances have been represented on dissection. None, indeed, of the lesions of the ovary, and these are infinitely diversified, perhaps as much so as of any organ of the body which has not been detected associated with its hydropic effusion. But such details can be only embraced in a general review of its distemperatures. More immediately belonging to this special affection, are cysts of different textures and sizes, sometimes a single one, on other occasions several, or even a congeries of them attached to the surface, or in the substance of the ovary,—containing pure serum or fluids of various kinds and degrees of purity;* the multilocular sacs communicating

* They may be serous or bloody sanies, or puruloid or purulent or granulated,

or not, and the surrounding substance merely solidified, or very malignantly affected. Yet such degenerations are not uniform. Cases have occurred that with considerable integrity of the ovary itself, the peritoneal covering may be chiefly concerned.—Between the membrane and the viscous, a firm adhesion prevails around the circumference of the latter, so that a sort of cul-de-sac is produced, constituting a receptacle for the effusion, gradually enlarged, as the deposition of fluid accumulates. But hydatids are represented to have occurred occasionally, some one or more of prodigious growth, forming a vesicular-like bag, filled with a pellucid fluid. This may be so,—though I have never seen such, and the fact of the hydatid character of the cysts, when of any magnitude, wants authentication.

For the most part, the ovary is enlarged,—we have an instance where nearly solid, it weighed upwards of fifty pounds, and another in which it contained within a sac, one hundred and forty pints of fluid. This is reported by Muller and Monro, Haller, Wepfer, Frank, and others have given instances of nearly an equal quantity. The fluid is rapidly replenished.

Martineau drew off four hundred and ninety-five pints of fluid, in a case, within a year, and it continuing, six thousand six hundred and thirty-nine pints in twenty-five years, by eighty operations. There is another, in which nine hundred and sixty-four pints were discharged in a year, at fourteen tappings, making a daily secretion of two and a half pints, and which lasting for five years, two thousand seven hundred and eighty-seven pints were drawn off by forty-nine successive operations. It is contained in the second volume of the Medical Communications of London, and there is a second in the seventy-fourth volume of the Transactions of the Royal Society, where in eighty tappings the quantity amounted to *thirteen hogsheads*. Exaggerated as these reports would seem, they come to us, at least, sanctioned by the authority of two of the learned bodies of Europe. There lately died in this city a lady of my acquaintance, who, labouring under this affliction, was actually tapped on an average once a month for several years, and each time lost about three gallons of fluid.

—thin, or as viscid as honey, and of various colours, limpid, or green, or yellow, or dark, or black. But in some of these cases pure dropsy does not exist,—there being either a complication with very different lesions of the ovary itself, or it may be independently affected by abscess, &c.

Much obscurity is confessed in regard to the pathology of this disease. But presuming the account of its anatomical characters I have given to be correct, I think there may be deduced from it a more clear and satisfactory view. The disease is a local dropsy, the proper seat of which is the portion of the peritoneum enveloping the ovary, and is induced by inflammation of that membrane, either originating in itself or derived from the substance of the viscus. Exactly the same happens with regard to other viscera invested by a serous tissue, the brain, the lungs, the liver, &c. But, perhaps, as the aptest illustration of the mode in which it takes place, hydrocele may be cited. The ovary and testicle are kindred glands, covered by the same tissue, and as the one, so may the other be brought into a condition for hydroptic effusion. Nor does the parallel stop here. Each organ has the same susceptibility to intenser inflammation, ending in suppuration, induration, scirrhus or other consequences.

Collections of a serous fluid in hydatids can scarcely be deemed genuine dropsy. Doubts, indeed, do I entertain in opposition to the tenour of authority, whether those cases of extraordinary accumulations have been faithfully represented as of a hydatid character,—it appearing to me more likely that they are referable to depositions, within the peritoneum reflected over the ovary, which becomes thus distended. It may be particularly mentioned, among other grounds for this hypothesis, that all such sacs which I have seen or have read a description of, were totally different from a hydatid, being thicker, opaque and highly vascular, whereas the former is uniformly thin, translucent and utterly devoid of vessels.

As a conjecture only, I will further suggest, that in some instances, at least, what have been apprehended to be hydatids were in reality the blighted vesicles of the ovary, which once excited, though not successfully as to the object of fecundation, acquired a vital energy capable of vast developments. That the latter should occasionally happen in regard to these vesicles is as readily to be conceived as the extraordinary hypertrophies of other minute structures, which undoubtedly take place. The subsequent wonderful growth and expansion of the chorion and amnios, those membranes forming the ovum as it issues from one of these vesicles, and which at the time is a mere atom, supplies a striking illustration of the fact. Yet still more does the

vast increase of the ovary itself, which, in a natural state not weighing an half ounce, may, as we have just seen, attain the weight of fifty pounds.

To this conjecture I was originally led by the appearances presented in two examinations I made twenty-seven years ago of ovarian dropsy in the Almshouse Infirmary. These, however, were unavoidably hurried and incomplete, and I have had no farther opportunities of pursuing the inquiry with greater precision. But the hypothesis I have since constantly maintained in my lectures and in private conversation, and similar views have subsequently been adopted by some of the European pathologists. Lee, no common authority, especially declares, "that it scarcely admits of doubt, from the progressive enlargement observed of the Graaffean vesicles, that the cysts supposed to be hydatids often originate in the morbid distension of the former bodies." Taking this extract from a review of, and not from his work, I do not, however, know that I quote him correctly.

Destitute, then, of positive evidence to support this notion, I dismiss it for the present with a very few observations. That it helps in some degree to an explanation of the peculiar liability of the ovary to this variety of dropsy, may possibly be allowed. What else is there in the constitution of this organ to occasion such affectability? Can it, indeed, be shown that hydatids in any other viscus ever attain to so great a size and with an equal amount of fluid, or exhibit a similar aspect? On the contrary, are they not comparatively small and distinctly characterized? But the whole subject is mysterious, and I commit it to further and more exact investigations.

Considering, in the present state of our knowledge, an effusion from the peritoneal investment of the ovary as only claiming among the diversity of affections confounded with it, to be legitimately dropsy, I shall confine my remarks on the medical treatment to it exclusively. The condition antecedent to any of the essential lesions is, perhaps, alone medicable. By bleeding, general and local, the latter particularly, often repeated, then a succession of blisters, low diet, rest, and finally an alterative course of mercury with cicuta, henbane or opium, or as recently advised, the iodine preparations, we may hope to arrest the case.

Effusions having taken place to any extent, independently of other aggravating lesions, the chance of cure is nearly desperate. Means ordinarily promotive of absorption are here impotent and nugatory. Many, indeed, concur in the opinion of the celebrated William Hunter, that "the patient, under such circumstances, will have the best chance of living longest who does the least to get rid of the disease." Medicines of any power act for good or evil, and where such are employed as have no curative effect, the contrary must take place by keeping up a pernicious irritation of the system. The remark is so far true.

But surgery offers some resources meriting consideration. Extracting the fluid by tapping the sac has unquestionably afforded frequently immense relief for a time and lengthened life with tolerable comfort. Yet it is only palliative on account of the rapidity of the replenishment of the fluid, and objectionable from the necessity of the frequent renewal of the operation, and the uncertainty and hazard attending it. Death from exhaustion has sometimes followed it, and oftener peritonitis has been excited, ending fatally. The tumour, too, being multilocular and the cells not communicating, or the fluid very viscid, or, and which has happened from the ambiguity of the diagnosis, instead of a sac containing a fluid there is a hypertrophied ovary or some other solid tumour, the operation utterly fails and may be productive of serious injury.

An interesting summary has lately been presented by Mr. Southam, an English surgeon, of the history of twenty cases of the disease in which paracentesis was performed. It appears that out of this number fourteen died within nine months after the first operation, four of whom survived it only a few days. Of the remaining six, two died in eighteen months and four lived for periods varying from four to nearly nine years. Thus it results that paracentesis does not prolong life, on an average, for more than eighteen months and nineteen days, and that one in five dies from the effects of the first operation." These statistical reports, however, especially on a small scale, are very fallacious, and I am persuaded that such a degree of mortality from the operation does not correspond with general experience and is assuredly contradictory to my own. Contemplating it in its most unfavourable aspect, it is a resource to which we shall be com-

peled to resort to relieve insufferable distress. As in ascites, the danger seems to attach very much to the first operation. Dissatisfactory on the whole, several improvements of this operation have been suggested, though none adopted, some too absurd to be tried, and those which were, proving otherwise. Dropsy of the ovary is, however, sometimes spontaneously cured. Baillie mentions an instance where it thus disappeared after an existence of thirty years, and several are recorded from the bursting of the cysts externally or into some portion of the alimentary tube. Yet facts of the kind are too few to confide much in these natural efforts, and they are noticed here rather as affording some encouragement to the performance of paracentesis.

An extirpation of the whole ovarian mass in this and other of its affections, has been practised to a considerable extent and with diverse results. The merit of this bold attempt belongs to Dr. McDougal, an intrepid surgeon of Kentucky, of which some European writers have vainly endeavoured to despoil him by the allegation that he had been anticipated. He first performed the operation in 1809, and successfully. But a case is produced of its having been earlier done by Laumonier, of Rouen, in France, very imperfectly authenticated, and at all events for an acute abscess of the ovary, and not dropsy with its chronic disorders. The operation, indeed, seems to have been wanton and unnecessary. That a discussion prevailed, perhaps half a century before, on the expediency of the operation, among some of the leading men of the profession is true, without, however, having been actually carried into execution, and of which agitation of the subject I am very doubtful whether the American had any knowledge, it being confined to the continent, and our medical reading at the time was wholly English, in which scarcely any notice was taken of the proceedings of other countries. To originality, both in the conception and performance of this experiment, I think he is entitled.

Not long since Churchill, of Dublin, with exemplary industry, collected sixty-six cases of the operation, perhaps nearly the whole ever performed, which are very carefully analyzed, and the following results given. Of forty-nine cases in which the ovary was extirpated, sixteen died. Of nine cases in which the operation could not be completed, four died, and in eight cases

where the operation was unnecessary, four died. But the annexed tables will show these points more in detail.*

* TABLE I.—*Cases of Extirpation of the Ovary.*

NO. AND DATE.	OPERATOR.	AGE	INCISION.	RESULT.	CHARACTER OF DISEASE.	ADHESIONS.
1	L'Aumonier.	..	4 inches.	Recovered.	Abscess of ovary.	
2—1809	Dr. M'Dougal.	..	9 do.	do.	Gelatinous matter.	
3—1816	do.	..	Long.	do.	Scirrhouv ovary.	
4	do.	..	.. . . .	do.		
5	do.	..	.. . . .	do.		
6	do.	..	.. . . .	Died.		
7—1821	Dr. N. Smith.	33	3 inches.	Recovered.	Cyst, fluid.	Adhesions.
8—1825	Mr. Lizars.	36	Long.	do.		
9—1825	do.	35	do.	Died.		Adherent.
10	Dr. A. G. Smith.	30	do.	Recovered.	Cyst, fluid.	
11	Dr. Quittenbaum.	..	About 4 in.	do.		
12—1829	Mr. D. Rogers.	..	About 3 in.	do.	Solid and fluid.	Adhesions.
13	Dr. Granville.	..	.. . . .	Died.		
14	Dr. Chrysmer.	47	Long.	do.	Cart. and lardaceous matter.	Adherent.
15	do.	38	do.	Recovered.	Honey-like and green sanies.	do.
16	do.	..	do.	Died.		
17	Dr. Ritter.	31	do.	Recovered.	Cyst, fluid.	
18—1836	Mr. King.	57	Short.	do.	do.	
19—1833	Mr. Jeafferson.	..	do.	do.	do.	
20	M. Dolhoff.	23	Long.	Died.	Cyst and fluid.	Adhesions.
21—1836	Mr. West.	..	Short.	Recovered.	do.	
22	do.	..	do.	do.	do.	
23	do.	24	do.	Died.	do.	
24	do.	..	do.	Not cured.	do.	
25	Mr. Hargraves.	40	do.	do.	Multiloc. cysts.	Adhesions.
26	Dr. Clay.	46	27 inches.	Recovered.	Cysts, solid and fluid.	do.
27	.. . . .	67	14 do.	do.	do.	Ext. adh.
28	.. . . .	39	28 do.	do.	do.	do.
29	.. . . .	40	14 do.	Died.	do.	do.
30	.. . . .	22	14 do.	Recovered.	do.	Adhesions.
31	.. . . .	40	14 do.	Died.	do.	None.
32	.. . . .	43	14 do.	Recovered.	do.	Ext. adh.
33	.. . . .	59	16 do.	Died.	do.	do.
34	.. . . .	46	16 do.	Recovered.	do.	do.
35—1840	Mr. B. Phillips.	..	2 do.	Died.		
36—1841	Dr. Stilling.	..	6 do.	do.		
37—1842	Mr. Walne.	58	Long.	Recovered.	do.	None.
38—1843	do.	57	do.	do.	do.	do.
39	do.	21	do.	Died.		
40—1843	do.	20	do.	Recovered.	do.	do.
41—1843	Mr. Morris.	..	do.	do.		
42—1843	Mr. Southam.	..	do.	do.	Cystic sarcoma.	do.
43—1843	Dr. F. Bird.	..	3 or 4 in.	do.	Cyst and fluid.	do.
44—1844	do.	..	do.	do.	Cysts and solid matter.	do.
45	Mr. Atlee.	..	9 inches.	do.	.. . . . .	Adhesions.
46	Mr. Lane.	..	Long.	do.	Cysts, fluid.	None.
47	Mr. Key.	19	do.	Died.	do.	do.
48	Mr. Greenhow.	29	do.	do.	.. . . . .	do.
49	Mr. B. Cooper.	32	do.	do.		

It seems to me, on a review of all the considerations which bear on the question, that this operation is justifiable under certain circumstances. Nothing is better established than the ineffectuality of purely medical treatment in the advanced stage of the disease, and the imperative demand of something to relieve extreme suffering, and, indeed, to preserve life.

“Extremis malis, extrema remedia.”

Even in this view a resort should not be had to the expedient unless a case of necessity is clearly made out, or that the hope of benefit, in a fair estimate, is greater than the danger of the operation. Could the diagnosis be so improved as to enable us to separate with precision the favourable from the unfavourable states of the organ, then I suspect that ovariotomy might be brought to as much certainty as any of the great cuttings or mutilations of surgery. Nay, at present it is not, perhaps, more fatal than lithotomy, the excision of the mammae, or even amputation, so generally practised. Connected with it there is a circumstance peculiarly encouraging. The ovaries are not vital

TABLE II.—*Cases of Ovarian Disease in which the Operation could not be completed.*

DATE.	OPERATOR.	CAUSE OF FAILURE.	RESULT.	INCISION.
50	Dr. M'Dougal.	Adhesions to bladder and uterus.	Recovered.	Long.
51	Mr. Lizars.	Solid and very vascular tumour.	do.	do.
52—1826	Dr. Granville.	Firm adhesions.	do.	6 inches.
53	Dr. Dieffenbach.	Vascularity.	do.	Long.
54—1826	Dr. Martini.	Solid and fixed tumour.	Died.	do.
55	Anonymous.	Fixed tumour.	do.	
56	M. Dolhoff.	do.	do.	About 6 in.
57	Dr. Clay.	Extensive adhesions.	do.	Long.
58	Mr. Walne.	do.	Recovered.	5 inches.

TABLE III.—*Cases in which the Operation failed from an Error in Diagnosis.*

DATE.	OPERATOR.	RESULT.	DISEASE.
59—1823	Mr. Lizars.	Recovered.	No tumour found.
60—1834	Mr. King.	do.	do.
61	M. Dolhoff.	do.	do.
62	Dr. Clay.	Died.	Uterine tumour.
63	do.	Recovered.	Hydatid.
64	do.	Died.	Pelvic tumour.
65	do.	do.	Uterine tumour.
66	Mr. Heath.	do.	do.

organs, and lengthened experience goes to show that they may be removed in a sound condition from the domesticated animals with scarcely any fatality. No reason do I perceive why the same might not be done in the human subject. The male suffers little danger from the excision of his testicles, healthy or diseased, and it is not unlikely the female system is as nearly tolerant of similar ablutions. But the subject belongs to surgery, and I turn it over to the professors of that art further to investigate and to fix it on more definite grounds. To these few remarks I have been led in consequence of the recent brilliant success of my friend, Dr. Atlee, of Lancaster, Pennsylvania, in extirpating both ovaries simultaneously,—an operation which ought to place him, where I have long known him to be entitled, among the most skilful of the surgeons of our country.

In another form of abdominal dropsy, the effusion is deposited externally to the peritoneum, in the space between that membrane and the parietes of the abdomen. Looking at this interval, in a natural state, we shall find it partly occupied by a layer of loose cellular texture, and it may be from this, rather than the external peritoneal surface, that the effusion proceeds. By previous inflammation, adhesion probably takes place in a portion of the membrane, and a sac is formed, giving the character of encysted dropsy.

Cullen and other writers allude to this variety of dropsy, without, however, describing it. Two instances of it came under my own observation some years ago, each in girls, preceded by much abdominal uneasiness of a spasmodic or crampy nature. Effusion was rapid, producing a large and regular intumescence of the belly, very like pregnancy.

Limited as my experience is, I cannot draw any precise diagnosis between this affection and ascites. But in the cases mentioned, there was an entire absence of the hydropic diathesis and symptoms, except the swelling, the skin being natural; no extraordinary thirst existed, and the alvine, urinary and menstrual discharges were unaffected. From the want of fluctuation, I was persuaded, too, that the water was not in the cavity of the peritoneum.

Cupping, leeching, blistering, purgatives, diuretics, diaphoretics, mercury alone and combined afforded no relief, and after continuing for a year or more, they both spontaneously disappeared

with watery discharges, recurring again, as I understood, several times, at different intervals. What ultimately became of the cases I do not know. Meeting with such hereafter, I should not hesitate to resort to an operation to evacuate directly the fluid.

HYDROTHORAX, VEL HYDROPS PECTORIS, VEL HYDROPS THORACIS.

These, which are the common technical titles of this affection, mean only dropsy of the chest. More accurately denoting its situation and pathology, would be the term *hydrops pleuræ*, or effusion into the pleural cavity and which ought to be adopted.

It may be original or secondary dropsy, one of the immediate sequelæ of acute, subacute, or chronic inflammation of the serous membrane of the lungs, or indirectly the product of diverse lesions of other organs and general derangement of health. Caused in the former mode, it is, previously to the effusion, merely pleurisy in its several modifications, the symptoms of which need not here be described. In the second form of the affection, the most common and important, I have known the attack of very sudden development, even in a few days, the chief premonition being some thoracic weight and uneasiness.

Taken, however, in its general character, the invasion of the disease is gradual, and continues its course so imperceptibly, as sometimes scarcely to attract observation for a considerable time. Most of the early symptoms in this form of it are indicative of some antecedent disorder of other parts. But, at length, more characteristic signs arise, as a dull pain at the lower end of the sternum, accompanied by a slight difficulty of breathing, increased by any exertion, particularly ascending an acclivity, as going up stairs, though it is always most considerable and permanent during the night, when the body is in an horizontal posture. With these phenomena, there is cough, at first dry, which, however, is soon attended by an expectoration of thin, glairy phlegm or mucus, and now an increased uneasiness amounting, occasionally, to positive pain, steady or fluctuating, dull or lancinating, is experienced, more or less, over the chest. The pulse is generally hard, somewhat accelerated, or slow, full and variously irregular. There are likewise, paleness of complexion, an œdema-

tous swelling of the feet, ankles and hands, some thirst, and a diminished flow of urine. The bowels are little affected. These symptoms become progressively aggravated, though still slowly, and some time usually elapses before the attack is fully formed.

The sleep then is frequently interrupted on a sudden, sometimes by alarming dreams, out of which the individual quickly starts up in bed with impending suffocation. Convulsive efforts of the muscles subservient to respiration, resembling a paroxysm of spasmodic asthma, with palpitations of the heart, generally accompany such attacks, which may be excited by the most trifling voluntary motion or even by a fit of coughing,—or by any mental emotion or perturbation.

Labouring under the more aggravated of these distressing affections, the sufferer is required to be propped up,—his mouth open, and betraying the utmost anxiety for fresh air. His face and extremities are cold, the pulse more abnormal, intermitting in a degree, seldom experienced in other disorders,—and a pain or feeling of numbness extends itself from the heart towards the insertion of the deltoid muscle of one or both arms, down, in some instances, to the extremities of the fingers. Excepting, occasionally, a livid hue of the lips, the countenance continues pale, betraying a peculiar anxiety and ghastliness, and, together with the upper parts of the body, is often covered with a profuse, clammy sweat. Drowsiness, coma, sometimes with delirium, occasioned remotely by the impeded transmission of blood through the lungs, and want of sleep not unfrequently attend the latter period of the disease, and from the former cause the sputa may be bloody.

Continuing in this way for a while, the paroxysm gradually subsides, and an interval of comparative ease is enjoyed, till, by some cause, it is re-excited, with a renewal of the same degree of distress.

Let it not, however, be supposed that this description is applicable to all cases of the disease. Like other morbid affections, it has its gradations of severity, and the delineation I have presented is of the very worst form of it. Cases are, indeed, reported by Morgagni, Rufus, Lentin, Stoerk and many others, without any indication, whatever, of its existence, or so very slight or vague as to elude suspicion. The same has been observed by myself. Dissections in the Almshouse Infirmary,

especially, so often showed a considerable quantity of fluid in the chest, and in some instances on each side, where it had been not at all denoted by symptoms, that the conclusion is almost warranted, that unless it be enormous or of some continuance, or coupled with effusion into the pericardium, it is productive of little or no disturbance. Of this, at least, I have scarcely a doubt, that most of the affections usually attributed to dropsy of the pleural cavities, are owing to that of the pericardium.

Death takes place either from the slow wasting of strength or by a paroxysm of anhelation, or orthopnoia, or unexpectedly without any assignable or obvious cause. I have known it to happen merely by an effort in changing the position, as in attempting to get out of bed, or moving from one chair to another, and this when the urgent symptoms had so much remitted as to have led to the hope of convalescence.

In the introduction to this inquiry I so far anticipated the etiology of the disease, as to have stated that it may proceed from a primary phlogosis of the pleura, or secondarily as a consequence of some other and remoter lesion.

Not unfrequently it follows pertussis, asthma and protracted catarrh or bronchitis, especially in weak, lymphatic persons. It is also and more frequently consequent on disorganization of the heart and the great vessels,—or disorders of the chylopoietic viscera, including the stomach—sometimes misplaced or irregular gout, or rheumatism, or repelled or imperfectly cured eruptions, above all scarlatina, as well as a state of anæmia, however induced, particularly by excessive losses of blood. The fact is too important not to be mentioned, that it very often happens where the pleurisy of aged or otherwise feeble people is thus treated,—though that disease may be cured, an effusion into the pleura becomes entailed. During my long attendance in the Almshouse Infirmary, such an event so commonly occurred among the inveterate drunkards of that establishment, that I became exceedingly discouraged from the use of venesection to any extent in that affection under these circumstances.

Lastly, it should not be forgotten that the disease may be occasioned by a metastasis of the fluid from other parts, and particularly the lower extremities.

Nevertheless, it is still affirmed by Andral,* the most accurate

* Clinique Medical.

of the cultivators of morbid anatomy, that out of six thousand cases of hydrothorax examined by him, he met with only five which were not dependent on a structural lesion of some part of the body. But I apprehend he has here assumed as causes what might more correctly be deemed coincidents, or in other words, that, though from the shattered constitution of those most liable to the disease, disorganizations are pretty constant, it cannot so uniformly as he is disposed to do, be referred to these as the causes of it.

Few diseases are more obscure and difficult to be distinguished than this, it having, in common with a number of other affections, such a similarity of features. Those with which it is most likely to be confounded are, an abscess in the lung or empyema, angina pectoris, asthma, pulmonary œdema, certain gastric and cardiac lesions, and, above all, dropsy of the pericardium. By close attention to the history of these cases, they may, however, generally be discriminated, though sometimes the complication is so intricate, or they are otherwise so ambiguous that it is impossible to establish the diagnosis.

Of the most striking characteristics of hydrops pectoris, are pallor of the face and occasionally a lurid tinge of the lips, intermittent pulse, short, laborious breathing, particularly on going up stairs, more in the inspiration than the expiration, habitually cold feet and hands, with œdema of them, and startings in sleep. Baglivi, an exceedingly accurate observer, pronounces the two last symptoms, when accompanied by lividness of the lips, as pathognomic. But I am sure they are not implicitly to be trusted, having seen thoracic dropsy without them and other affections in which they occurred. It may be added as a circumstance entitled, perhaps, to more regard, that where the effusion is confined to one side only and is copious, there is usually an enlargement of that side, and should œdema follow, it will be, as I have observed myself, for a time in the lower limb of the same side.

Great reliance has been placed on the fluctuation of the water in the chest, and to produce it, succussion or shaking of the patient was formerly much practised, which I have found to be fallacious. Corvisart, however, says, by striking the sternum in an erect posture we shall detect it more certainly and distinctly. Even admitting this, which I can scarcely do, from my own experience, it would prove the existence of a fluid in the

pleural cavity, which might be pus, for example, and thus empyema be mistaken for hydrothorax.

Bichat tells us, that in a state of recumbency, compression of the abdomen aggravates all the symptoms, and especially the sense of suffocation. But it, too, is deceptive,—exactly the same degree and kind of distress being occasioned as well in empyema and other lesions of the lungs as the organic affections of the heart and large blood-vessels.

Confidence, to a certain extent, is to be reposed in percussion, the sound being heavy and inelastic on the side containing the effusion. Yet it is not without uncertainty, since the same sort of tone is emitted in empyema, in ordinary hepatization, and in the tubercular and other states of the lungs. Nor is the stethoscope exempt from objections. When applied to the part containing the fluid, whatever may be its nature, we perceive, on the patient speaking, the voice to be remarkably thin, sharp and tremulous, denominated ægophony, or bleating like a goat. But as the case advances and the cavity is filled with the fluid, this peculiarity of voice is lost,—the sound becoming dull, and respiration no longer heard. The fluid being partly evacuated, the ægophony again returns. But as to the kind of fluid, it affords no discrimination.

In equivocal cases, all these means may be employed, without, however, confiding in any one exclusively. We must collect the diagnosis from a strict perquisition into the history of the case, coupled with the aids I have just pointed out. Thus, if it be empyema or an abscess in the lung, we shall learn, that there had been previously active pleurisy or peripneumony:—if it be a sympathetic affection of the stomach, symptoms of dyspepsia will exist, and so with regard to the other cases which resemble the disease, each having, to a certain extent, its distinctive signs. Between the effusions into the pericardium and those of the pleural cavity, and especially when co-existent, such is the resemblance in every feature, that I believe they cannot, with any precision, be discriminated. Many criteria, however, have at different times been pointed out, and some are still retained as deserving of regard, which hereafter I shall notice.

Cullen pronounces hydrothorax to be nearly incurable, and such is the prevalent opinion among the older writers. That it proves fatal in a large majority of instances, when dependent on

serious organic lesions, or occurs among old people, or such as have a very impaired constitution from depraved habits or other causes, or is complicated with effusions into the pericardium or pulmonary tissues, is unquestionably true. But arising under more favourable circumstances, and especially as the production of simple pleurisy, I have reason to believe that, for the most part, so far as regards the fluid, it may be removed. We have, indeed, of late, been taught, that in primary pleuritic eliminations of the kind, absorption is performed with such extraordinary rapidity and certainty, that scarcely any danger is to be apprehended in the case, in which opinion, however, I do not concur,—my own observations warranting infinitely less success.

On the whole, for reasons previously mentioned, the suddenness and unexpectedness of death, and with every prospect of recovery, our prognostications should always be cautious and qualified. Yet, it is to be added, that spontaneous cures may happen under circumstances apparently desperate, of which several very striking examples are known to me. Two of these in men, resulted from the percolation of the fluid through the cellular texture down into the lower extremities, and escaped by transpiration. The third was, perhaps, still more remarkable. It occurred in a lady whom I attended, in consultation with the late Professor Dewees, some years ago. From the time of her confinement, nearly five weeks prior to my seeing her, she had suffered from slight diminutive fever, and had become ænemic, with thoracic oppression, impeded respiration, and the other indications of pleural effusion. Early one morning we were urgently called to her, and finding her propped up in bed, gasping for breath, the lips livid,—speechless, unable to swallow or to speak—without consciousness—the pulse scarcely appreciable, and she altogether seemingly in articulo-mortis, we left her to die, but in a few minutes after we quitted the room, a copious diuresis came on, and I speedily returning, had the happiness to see, by the continuance of the flow of the fluid, her entire relief. No relapse ensued, and she soon recovered perfectly.

As proceeding from such numerous lesions, the appearances on dissection must be exceedingly diversified in thoracic dropsy. Many of these, however, belong rather to a remote or some

distinct pathological condition than that which immediately preceded or caused the effusion.

The pleura is generally found inflamed or variously changed by thickening or otherwise, as in the weaker states of pleurisy; or where the contrary is observed, or the marks of an intenser inflammation exist, they are probably referable to some anteecedent and more violent attack which the membrane had sustained. Not uncommon, indeed, is it to meet with the pleura apparently healthy or even preternaturally pale, flaccid and attenuated, especially in ænemic cases of the disease. As much do the lungs suffer occasionally in their substance and mucous membrane as in the serous tissue itself.

The fluid is usually contained in one of the pleural cavities, though it may be in both. To any great extent I presume it could not continue for any length of time in each side with a retention of life,—since when it is confined to one only in large quantity, the lung is compressed,—pushed towards the spine or mediastinum, and destitute of air, showing its functions had been suspended. The fluid varies in quantity and quality. Morgagni states it at an average of two or three pints. Walfius, however, reports a case where it amounted to sixteen, and Itard several of twelve and fourteen pints. I have seen instances in which it was immense. Mostly thin and of a light straw colour, it may be, however, purely serous, or sero-lymphatic, or albuminous, or sero-purulent, or sero-sanguineous, and it has been observed dark and granulated like coffee grounds. Besides the pleural cavity, the fluid is sometimes contained, also, in the duplicature of the mediastinum,—in the cellular pulmonary texture, and in the pericardium.

The preceding are some of the proper anatomical characters of thoracic dropsy. But these embrace only a very small portion of the mass of disorder which the disease usually exhibits. Mainly the effect itself of an unsound constitution, the evidence of the latter is brought into view in the lesions of a greater or less extent of the most important organs of body. These, however, do not now appertain to my inquiry.

Of the pathology of hydrothorax I have scarcely a word to say, it being similar to that of the serous tissue of the abdomen, on which I so recently descanted that my views must be known. Diversified as are its causes, they all unite to produce either a

phlogistic condition of the pleura, mostly subacute or chronic, or such changes in the exhalents or the blood itself, as to allow a serous leakage. This refers to the simple or elementary forms of the disease. But its complications are diversified, among the most conspicuous of which are, as just intimated, œdema of the cellular tissue of the lung and effusion into the pericardium. Laennec and his disciples, however, maintain that the effusion from pleurisy is not a genuine dropsy, the latter being very different in most of its prominent features. An absurdity so obvious is undeserving of criticism, and, therefore, I shall only ask, must we not for the same reason place in the same category ascites, hydrocephalus, hydrocele, anasarca, consequent on the phlogistic irritations of their respective tissues? Exactly, indeed, is the reverse, or that in no other mode than this is legitimate dropsy produced.

In the management of this affection we are to be guided, to a certain extent, by those general principles, and, with some exceptions, to adopt the remedies suited to the preceding species of dropsy.

It is to the inflammatory form I am first to address myself. Connected as effusions of the chest are with unsoundness of constitution, there is still, in the early stage, mostly, some considerable activity of phlogosis, indicated by the pulse, thoracic pain,—the appearance of the sputa, &c.

Commencing here with venesection, this is to be repeated so long as this condition continues or the remedy can be borne. Diseases of the lungs and their serous tissue require, perhaps, more than any other, the loss of blood for their cure. The general may be greatly aided by topical bleeding, and preferably by cups. These should be applied to the back, where they act most efficaciously, leaving the breast for a succession of blisters. Much of the want of success, in the early stage of this affection, is to be ascribed to the neglect or inadequate employment of these means. There is at this time phlogosis of the pleura and neighbouring structures, and all experience goes to prove that it is peculiarly remediable by such a plan. My remarks, of course, refer to the disease in persons of some vigour and integrity of constitution. As formerly mentioned, those of reverse habits, especially broken-down drunkards, so far from bearing

such depletion, are rendered worse by it, sometimes even leading to the effusion, or, if already existing, increasing it.

Nitrate of potash, given freely by itself or with tartarized antimony, is the appropriate internal remedy. It reduces vascular action, promotes the evacuation of the fluid and prepares the way for the more active sorbentia. Of these, the best is a combination of squill and calomel, from which effects are produced not derivable from either article alone. The manifestation of the specific influence of mercury is an auspicious sign. Dyspnœa and other distressing symptoms are often relieved on its happening. But never should the mercury be urged further, and it will be found best, even in the attainment of this moderate effect, to insinuate it very gradually.

Not a little has been said of digitalis in these cases. Neither in substance nor tincture, however, have I ever derived any very striking advantage from it. Given at all, it should be as an infusion, and particularly as Withering's infusion, which is the best formula I have ever tried. Yet, by combining it with some other articles, it is sometimes improved, as in the complicated prescription given under the head of ascites. Nevertheless, it seems to be an opinion pretty well established that digitalis is much better adapted to dropsy of the pericardium, or affections of the heart imitative of it, than to the pleural effusions.

The preparations of colchicum alone, or diversely united, have been much praised at this conjuncture. What is their precise value I do not know. Cases, however, may be conceived, as those proceeding from gout or rheumatism, where this article might be useful.

Directed by that liberal spirit of inquiry which so eminently belonged to him, the late Dr. Ferriar, for several years previously to his death, conducted a series of clinical experiments to ascertain the most certain and active diuretic, and especially in relation to the cure of hydrothorax. The result of his numerous trials was that the following mixture is entitled to that distinction. No doubt this is an excellent prescription.*

Emetics, from their well-known effects on the chest, might reasonably be supposed to be beneficial, and hence are recom-

* R.—Ext. elat., gr. i.; Sp. nitr. dulc., ʒij.; Tinc. scill.; Oxymel. colch., ʒss.; Syrup. rham., ʒj.—M. The dose one drachm every three or four hours.

mended by some of the authorities. Excepting, however, to exonerate the lungs from oppressive accumulations of phlegm, mucus, &c., vomiting is not generally appreciated. On this point I cannot speak from any adequate experience. But I concur in the more common opinion of the utility of emetic substances in nauseating doses. The instances I have witnessed are not a few in which the most irksome uneasiness of the chest has been speedily relieved, followed ultimately by active absorption, from keeping up gastric distress for several days, with occasional intermissions.

Eminently advantageous as purging is in most dropsies, it is here very slenderly countenanced. The condemnation of the process has, indeed, been extended to the whole of the pulmonary affections. But however true it may be as a general maxim, I am sure it is false, in its particular application to this affection. Great reason have I to believe, that in every stage of thoracic effusion, unless there is irritation of the *primæ viæ*, the pulse being active and the constitution tolerably sound, in the decided advantage of purging, and the more so in women. Whether this be owing to the fact that they bear the operation better, I will not pretend to determine positively. Two important practical lessons have been taught in regard to women. They have more tenacity of life, and allow of longer and greater freedom of evacuations from the bowels than men.

Drastic articles answer best, and above all the elatin and croton oil. The former I usually prescribe in the tenth or fifteenth of a grain every hour or two, a few doses of which, nay a single dose, when of good quality, will often purge copiously. No less successful does the croton oil sometimes prove, though it is not as much to be relied on as the former article. The very first dose of it probably ever employed in the United States, was by myself in consultation with the late Professor Physick in a very confirmed case, coupled with ascites and anasarca. Given in the morning, and only a single drop, such was the copiousness of the hydragogue effects, that on my visit in the evening, all the intumescence had subsided, and convalescence henceforward took place. Even those who refuse here to purge freely, admit the propriety of keeping the bowels soluble. But be not content with this limitation of the process. Where it can be borne, and

by the most active articles, rely upon it, we have no means more decisive.

Expectorants are the only remedies remaining to be noticed, which, however, are prescribed rather as palliatives than with a design to the eradication of the disease. Hydrothorax is a compound case, in which the mucous membrane and the pulmonary substance, as well as the pleura, may be affected by inflammation or its consequences, preternatural secretions, combined with the hydroptic effusion. Nature, to overcome phlogosis of these structures, aims at the institution of a healthy expectoration, though she does not always alone succeed, and hence obviously, whatever aids her endeavours to this end, or even facilitates the raising up and discharge of oppressive, bronchial accumulations, must have a salutary effect. It so happens, too, that most of the expectorants are promotive of absorption, as the squill, the digitalis, the colchicum, the garlic, the seneka, the lactura virosa, not to mention others, and they are those, in various states of mixture, which are used.

With this, I complete the consideration of the acute and inflammatory form of the disease. As concerns the opposite state of it, little need be said, our powers being exceedingly limited, and which, for the most part, is uncontrollable, from irreparable local disorganization or universal pravity of system. Depleting remedies are here, to any extent, precluded, from the existing weakness. But local bleeding, blistering of the chest, and most of the articles just enumerated, with a view to the removal of the fluid by absorption, as well as those calculated to facilitate expectoration, may be employed. Correctives of the cachectic condition, and the means of invigoration, may also be brought into requisition, particularly some of the martial preparations, the phosphate or tartrate of iron. But these and every thing else, so seldom meet our wishes, that our confidence soon ceases in them, and left without efficient resources, our efforts are limited to assuage harassing symptoms as they may arise. From its importance I must again recall attention to the fact of the unquestionable gravitation of the fluid from the thoracic cavity to the lower extremities, and the relief thereby afforded. The patient is hence, at times of great distress, to be placed in a sitting posture, with his legs down, so as to promote the process, and as soon as the

fluid accumulates, it is to be evacuated by punctures with a sharp pointed lancet or by acupuncturation.

The profession have long practised the expedient without knowing its mode of operation. Experience showed it eased thoracic oppression, and it was resorted to accordingly. Not the least interesting case where it appears to have been often used with advantage, was that of Dr. Johnson, the renowned lexicographer. Greatly suffering for a lengthened period, from dropsy of the chest, we learn that, on the occurrence of anasarca, the operation mitigated his distress, and on one occasion, when in agony, I recollect he called vehemently to Cruikshank, his surgeon, to cut deep and freely, so as to get out the water, as the only source of relief. For many years, I have never failed to recur to it, under proper circumstances, and am entirely satisfied of its utility. Not curing the disease, it is still the most effective of palliatives and protracts life.

In circumstances thus desperate, a resort may be had to puncturing the chest itself.

Before, however, performing this operation, we ought to be assured of the existence of effusion, as very serious blunders have been committed. The only test of it implicitly to be trusted, it is said, is the fluctuation, which is a rare occurrence, and the fluid may be in the pericardium or the duplicature of the mediastinum, or cellular tissue of the lungs, or in cysts, in which cases it would not be drawn off and the attempts must hence prove abortive. But to use the language of Van Swieten, "a paracentesis of the chest is an operation which has been performed both by the ancients and moderns with good success." Even in the rude times of Hippocrates, this seems to have been done, and by himself. Down to a comparatively recent date it was continued, and we have the sanction of Senac, Du Verney, Bianchi, and other high authorities in favour of the practice.

Good declares that, on the continent of Europe, it is very frequently tried, and that the German miscellanies are full of cases of a favourable event. The quantity of fluid stated to have been evacuated in several of these is so enormous as to exceed credibility. Thus, in one instance, a hundred and fifty pounds at a single time, in others between four and five hundred pounds by different tappings within the year, and in a single case nearly seven thousand pints in eighty operations during a period of

twenty-five years. But there are others of later date with so much of the aspect of verisimilitude, that they cannot be doubted.

The Berlin Medical Transactions record a cure effected by an accidental wound made into the thorax, by which the whole of the water escaped at once. During the winter of 1820, the operation was performed by Professor Gibson, at the request of Dr. Jackson and myself, on a man in the Almshouse Infirmary, which seemed for a time to be doing well, and probably might have been successful had not a catarrhal affection supervened from an exposure to cold. But in subsequent cases it answered no other end than temporary alleviation, and in two instances it manifestly hastened death, in the one by exhaustion and in the other from the violent inflammation excited. It appears that throughout Europe this expedient has been very frequently resorted to within the last few years, and that the result of such general experience corresponds pretty much with my own.

The operation being usually ineffectual from the rapidity with which the fluid reaccumulates, it occurred to Prof. Jackson and myself, though we were not sanguine of success, that this obstacle to a cure might possibly be done away as in hydrocele by moderately stimulating injections. These were accordingly thrown into the pleural cavity, and for a time with the effect of repressing the effusion. But after several days the individual died.

Discouraging as these trials have proved, I still think the operation warrantable where other means have been unavailing, and the suffering extreme. Evidence we have of its occasionally succeeding;—it never fails of temporary relief, and viewed in the worst light it should not be opposed in a state otherwise of such hopelessness.

Boerhaave wisely says, on this very point, “that doubtful are better than no remedies,” and his commentator cites a case which admirably illustrates the truth of the maxim. It is taken from Du Verney, an eminent surgeon, who relates “that in a woman labouring under ascites and hydrothorax, little or no expectation existed from the character of the symptoms, particularly the lowness and irregularity of the pulse and the difficulty of breathing; he wrought an entire cure by successfully puncturing the belly and chest and letting out a large quantity of fluid.” Nevertheless, with my low estimate of the operation, I must repeat, that I consider a resort to it only vindicable as a *dernier resource*.

HYDROPS PERICARDII VEL HYDROPERICARDIUM.

As supplementary to the preceding dropsy, that of the pleura, I shall here make a few remarks on the effusion into the sac of the heart. Much, however, of what I should otherwise have had to say on this affection, belongs with more propriety to the general consideration of the cardiac lesions.

Between these two dropsies there is so much in common, that I may be further spared the necessity of some details. Especially in the mode of origin and progress are they similar, and each may be active or the reverse.

For the most part, when of the former variety, with a retention of some of the phenomena of the antecedent pericarditis, giving rise to the effusion, such as cardiac pain, there is a febrile state with exacerbations of distress which progressively increase in force and the frequency of repetitions, till the case becomes more evolved and distinctly marked. Considered, as it is, a rare form of the disease, I still think that I have seen it frequently to follow pericarditis,—whether induced by gout, rheumatism, or the more ordinary causes of inflammation,—coming on at the decline of the phlegmasial attack,—sometimes when convalescence seemed to have been secured, and as speedy in its termination as sudden in its development.

Nevertheless, in its tenour this dropsy is different in the mode of its rise and progress. Generally, it is met with in persons of ill-conditioned health, who had long complained of some thoracic uneasiness which may be ascertained to consist in a sense of weight and straightness in the praecordial region. The respiration is difficult, sometimes even approaching suffocation in the recumbent posture,—the pulse small, quick and irregular, and above all, by intermittency,—though rarely any intensity of palpitations,—sometimes extreme pallor and bloatedness of countenance and a disposition to syncope.

Connected with these symptoms, may be perceived a sort of instinctive propensity to lean over the back of a chair, or something else, by which mitigation is procured to the impeded breathing and other urgent affections. This has been conjectured to be owing to the gravitation of the fluid from the heart to the sac, which I do not think is true, having seen an equal

degree of relief procured in the same way in nearly all the disorders of the heart, many of which were surely without effusions. The credit of this observation, which was long since published by me, and now abundantly confirmed, I think I am entitled to.

During the paroxysm, usually lasting from one to several hours, to return again, however, after a short respite, such is the degree of suffering that a state of mental distraction may be induced, at first in the shape of wild delirium, or even frenzy, gradually subsiding into stupor or insensibility with lividness of the lips, or face, or nails, or the whole together, and stertorous, slow, laborious breathing, as in apoplexy. Desperate as this condition may appear, and often as it does prove fatal, it is not necessarily so, having again and again seen instances of recovery from it, though never an actual cure.

Let it not be supposed that we have always this terrible state of things: every gradation of it exists, and more frequently in some mitigated shape. Not uncommon is it to see individuals supposed to have the disease to get through paroxysms of it of even great severity, and to enjoy for weeks a very tolerable share of ease,—the oppressive effusion having been removed for a season. Many, too, where the collection of fluid is moderate, may escape such attacks and suffer scarcely more than in chronic bronchitis, or other affections of anhelation. But by the advance of the disease, or some indiscretion, an exacerbation takes place, and then the sufferings I have described will be realized.

It may be enough, at present, to state of the etiology of this affection, that while proceeding from primary pericarditis, it is also the result of many of the disorders of the heart, the great vessels, the lungs, and those of the abdominal viscera, each of which, though more especially the cardiac lesions, is productive of it indirectly, by inducing pericarditis. The tendency to such effusions is probably far greater than is usually suspected. No disease, perhaps, is there in which it is not found, however remotely seated from the heart or slenderly connected with it. Tables, comprehending some fifty of the most diversified affections, show that it is a pretty constant occurrence, and, above all, in tubercular consumption, and to a considerable extent. Experiments, indeed, long ago proved this disposition to effusion wherever the heart is vehemently excited. The celebrated anatominist, Vesalius, had informed us, that he uniformly observed a

collection of fluid in criminals who were quartered alive, and Littré noticed the same in decapitated animals, occasioned no doubt by the violent efforts of the heart in the act of dying.

Need I repeat the remark of the extreme difficulty of the diagnostication of the disease? Laennec declares, that unless the effusion be large, not less than a pint, it is impracticable, and by no means certain where double or treble the quantity exists. Candour has compelled a very general confession of this fact.

No one of the most peculiar of the symptoms I have already enumerated, may not be found in hydrothorax, and also in many of the disturbances of the heart itself. Even the protuberance of the praecordial region, with widening of the intercostal spaces, which only takes place when the amount of fluid is enormous, and has long continued, nor the dulness of sound of the chest, nor the feebleness nor tumultuousness of the actions of the heart, nor any thing else is at all conclusive. This declaration is supported by the amplest authority. Not to cite the older writers, Morgagni and his immediate successors, by whom the language is held, we learn from Testa, Kreysig, Darwell and others, all having profoundly studied the subject, that, to use the words of one of them, "every sign is equivocal, and trustless, in distinguishing hydropericardium from hydrothorax, as well as diseases without effusion."

Yet it is true that some have of late vauntingly proclaimed their ability to detect a very small amount of fluid, by a newly-discovered indication. They state that by making the patient, while in recumbency, turn from side to side alternately, percusion reveals a correspondent dulness with the change of posture, more particularly to the left of the upper part of the sternum. Not many have been silly enough to pay any attention to the suggestion, and even admitting the fact, it would still remain to determine whether the fluid was in the pericardial, or pleural cavity. Nor have we more capacity to detect the co-existence of the fluid in the two cavities.

As a criterion, however, we are told that in this state the individual cannot bear the horizontal position, and when the fluid has largely accumulated in the pericardial sac only, it is the contrary—he then preferring it, and with the head very low.

For the difference in these cases, the reason assigned is, that in the one, the fluid is transferred from the diaphragm to the spine,

whereby oppression is lightened, while in the other, it gravitates to the root of the lung, obstructing the ingress of air, inducing anhelation, or even a deeper sense of suffocation, all of which, I suspect, is more conjectural than demonstrated. As soon as we have acquired the means of satisfactorily determining the fluid, in the one, we will then seek the skill of doing the same in regard to the other cavity. Let us finish our present work before we embark in new enterprises. With the exception of the simple and strongly marked forms of it, and even here there is much obscurity, the fact must be confessed, that we are without the grounds of diagnostication in this disease.

The prognostications of the event of the case should be guided very much by the same considerations that influence us relative to its kindred affection. Not so tractable, *ceteris paribus* as pleural effusion, it is still like it less or more alarming as proceeding from a primary phlogistic state of the membrane, or secondarily, through derivative irritations of even the heart itself, or of other organs, and as the system may be sound or depraved. But in all its presentations, it proves very unmanageable, and though complete cures are occasionally accomplished, they are not common, or to be anticipated with much certainty.

The only anatomical characters proper to the affection are the effusion, and the appearances of the membrane from which it has escaped. Numerous as are the other lesions, these are the causes, and not the effects of the dropsy, and have already been sufficiently described.

The fluid may be purely serous, and nearly pellucid, or sero-albuminous, or sero-sanguineous, or sero-purulent, and of a turbid, or greenish, or yellowish, or citron hue, the latter perhaps the most common, and varies in quantity from a few ounces to one, two or three pints. As to the pericardium, it exhibits the marks of inflammation, such as redness, and increased vascularity, extravasations of lymph on its surface, thickening, and other changes of texture, and even suppuration, and ulceration, or it may be preternaturally pallid, attenuated and relaxed. These differences of appearance, in regard both to the fluid and membrane, are ascribable to the opposite states of the disease, inflammatory or the contrary.

As at all times the pericardium eliminates a serous fluid, and which, from the agitations of the heart in nearly every disease,

particularly in the struggles of death, some augmentation of effusion may be anticipated, the question has arisen, and been much discussed, as to the extent of accumulation required to constitute dropsy. Corvisart was the first to fix the amount at six or eight ounces, and with few exceptions, the subsequent writers on the subject seem to have adopted his estimate. Yet cases have undoubtedly occurred, where even more fluid has been detected, without any cardiac disturbance during life, and hence it is thought by some that the matter is not satisfactorily determined. No force is there in this objection. It is very readily to be conceived, that from peculiarity of constitution, or of states of the heart itself, or other circumstances, it may be very differently affected in different cases by the same amount of effusion. We have seen constantly illustrations of it in the other dropsies.

In the management of the affection, let it be recollected that, like the hydroptic effusions generally, it presents the opposite conditions of activity or the reverse, and to be governed accordingly. Essentially the remedies are the same as previously detailed, in relation to hydrothorax.

The loss of blood, I will merely remark, is oftener and more largely demanded here, not so much on account of the effusion, as for the relief of those great cardiac lesions with which the case is usually associated, and that an infusion of digitalis is pre-eminently useful.

Nor, perhaps, ought I to omit mentioning, that even the pericardium has been tapped, and a cure thereby effected. It was done by acupuncture, the needle having been introduced into the sac through an incision between the ribs. The fluid trickled out of this small aperture into the pleural cavity, and thence escaped by the external opening. The case was reported in one of the London Medical Journals some years ago. But whatever may be its merits, the operation is not new as claimed to be, except in the substitution of the needle for the trochar or lancet, to puncture the sac. The operation was proposed by Senac, and actually performed by Dessault nearly a century since. Laennec, who highly approves of it, suggests an improvement, by trepanning the sternum, instead, as heretofore, making an incision through the ribs. This operation, says he, is not at all dangerous, and is easy of execution. By means of it, we are

enabled to see and touch the pericardium, and may thus verify our diagnosis before proceeding to lay open the pericardium.

Notwithstanding, however, this encouragement to the operation, I cannot recommend it with any confidence, and presume the same distrust is generally entertained of it, from its having so seldom been practised. Every objection to it in hydrothorax seems to me to apply, *a fortiori*, to the present case. Nor on the evacuation of the fluid in either of these dropsies, in any mode, is it to be forgotten that the difficulty is far from being overcome. Commonly there remains to remove the lesions of structure with pravity of system, the accomplishment of which too often defies our best-concerted endeavours, and, consequently, a speedy return of the effusion, with its terrible distress,—to end in death.

HYDROCEPHALUS INTERNUS.

As now understood, this disease was probably not known to the ancients, or, at least, they have left us no description of it. That a passage in Hippocrates has been sometimes cited as warranting an opposite conclusion, I am aware. But to deduce from it such a meaning, the construction must be forced, and at most, it conveys only a seminal hint. The claim thus set up for him is further invalidated by the declaration of Celsus, who, having given a digest of the knowledge of his predecessors, becomes the highest authority on the subject. By him we are told that the term hydrocephalos was applied by the Greeks to an œdema of the scalp, and he uses it in the same sense.* Finally, however, it came to be extended to those enormous collections of fluid within the cranium, connected with a defective ossification of it,—and then arose the division of external and internal hydrocephalus, to the latter of which I shall confine my attention.

The merit of the earliest recognition of the affection I am to describe, is usually accorded to Petit, an eminent French surgeon, by whom it was noticed upwards of a century ago. Not a great

* “Ubi humor antem inflat, eaque intumescit et prementi digeto cedit νδροχεφαλον Graci appellant.”—Lib. iv. cap. ii. p. 187.

while afterwards it attracted the attention of Whytt, who, in his account of it published in 1768, has delineated it with such precision, that later writers have been content to do little more than copy from him with some amplification.

The common division of the disease, at present, is into acute and chronic hydrocephalus, or rather hydrencephalus, which is more accurately expressive of it,—the one term meaning, according to its etymology, effusion within the head, and the other within the brain. Lately it has been called hydrocerebris with equal propriety, though even this is less apposite than to designate it, as is done in regard to some of the other dropsies, after the membrane which is the immediate source of the effusion.

As a primary or secondary cerebral affection, a proper regard to precision, however, requires it also to be presented, and such is the course I mean to pursue,—embracing in the account of it to be delivered these several modifications, of which the acute form will claim priority of attention.

The first stage of the disease is, in some cases, exceedingly insidious, so much so as to elude suspicion when proper vigilance is not practised. But usually the child complains of languor, as from fatigue,—has a furred tongue, capricious appetite, thirst, irregular bowels, alternately torpid and loose,—the stools being white and glutinous,—scanty, high-coloured urine, heavy, foetid breath, pallid countenance, with a dark line under the eyes,—harsh skin, uneasiness of the head, more tenderness of the scalp than positive pain,—tumid or rather puffy abdomen, epigastric oppression and soreness on pressure. Much irritability and fretfulness are sometimes exhibited,—the sleep is disturbed by moanings, and by day and by night there are inquietude and discomfort, with little appreciable irregularities of the pulse, in the whole expressive of derangement of the digestive organs. But there may be more distinct manifestations of cerebral disorder, and among which is unsteadiness of gait, the foot being raised as if to be placed on a step, with a sort of tottering or staggering, as in drunkenness.*

This state lasts from a few days to several weeks. But sooner or later, the phenomena of excitement or phlogosis begin more clearly to be disclosed, in the shape of a febrile movement, with

* Golis.

nausea or vomiting,—sometimes a dry, florid tongue, though more generally moist and partially coated,—hot skin, flushed face, acute headache, or pain and stiffness in the nape of the neck, or aches of the joints, or soreness in the hands and feet, or the whole together,—throbbing of the temporal arteries,—strange sensations or noises in the ears, as the rushing of wind, or the falling of water, or the ringing of bells, with aversion to light and to sounds,—dry nostrils, picking of the nose, and moanings, or startings, or screamings, and grinding of the teeth in sleep. The fever is remittent, abating in the morning, with a sensible exacerbation at night, when the pulse acquires considerable activity.

Continuing in this way for a few days, we shall discover, with less general excitement, the approach of heaviness, attended by a knitting of the brows and a scowling expression of countenance. The pupil of one or both eyes is dilated or contracted, the first more commonly, and the pulse becomes slower, and sometimes intermits. Generally, the bowels are constipated, though occasionally disordered, and then the stools watery or of a gelatinous consistence, clay-coloured, mixed with green scybalæ, the surface of them being covered by an oily-like slime, and the urine is still deficient. For a time,—though the sleep seems to be profound, it is liable to be interrupted as previously described,—and on arousing the child, there is, at the moment, partial delirium, denoted by a wild, distracted eye, incoherent mutterings,—unusual behaviour, or quite irrational conduct,—and when raised up, sickness, with a tendency to syncope, is very apt to be manifested. Now, or at an earlier period, a dry, teasing cough arises, seemingly from nervous irritation.

This state of things advances on to the stage of oppression, owing, probably, to effusions. The pulse at first slow, struggling, and, perhaps, intermittent, becomes weaker, smaller and more accelerated, till it is thready and can hardly be counted, accompanied by squinting, more widely dilated or contracted pupils,—rolling of the head,—automatic or unmeaning tossings of the hands, low delirium, or profound stupor, convulsions, or spasms, usually of one arm or leg, or both, or of the muscles of the face. No inconsiderable difficulty of deglutition also exists,—and the respiration is frequent and laborious, with a lengthened pause between each inspiration, and not unfrequently, involun-

tary alvine and urinary discharges, the latter prodigiously copious and mostly pellucid.

During this period of collapse, and particularly at the commencement of it, efforts of reaction are made, which, however, are transitory, followed by a relapse of even still greater depression and in a condition nearly insensible, the child may lie for days. Emaciated considerably, in some instances, though not much, where the case is rapid, its aspect is still more altered by the effects of its sufferings. The face is pale, the eyes are sunken, though half open, with a film on the surface, the temples hollow, —the nose contracted, the forehead glazed or moistened by a cold, dewy perspiration, with occasionally small vesicles on the neck and breast, as if produced by the sprinkling of boiling water.

This is the tenour of the disease, which, however, may be diversified, as well in the mode of its approach as its career and eventuation. Cases occur, some of which I have seen, without any, or very slight premonition, ending fatally in two or three days or even hours. The child apparently well, is seized with ardent fever, attended by gastric or cerebral distress, or both, soon becomes comatose and dies, convulsed. These are the apoplexia hydrocephala of Cullen, and subsequently called *water strokes*, by Golis, from the rapidity of the effusion. On the contrary, we meet with it more frequently in subjects of weakly constitutions and lymphatic temperaments, where it proceeds slowly, and though presenting the leading characteristics of the affection, these are less prominently developed, and at no time betraying any activity of inflammation, either by the general circulation or local excitement.

Moreover, as the final incident to many febrile diseases which often takes place, all the preliminary stages are characterized by the symptoms of these, and till it actually bursts forth there may be scarcely any thing in the case to denote its approach.

It would be easy to multiply to nearly any extent, descriptions of the various guises and aspects exhibited by hydrencephalus, were details of this kind consistent with my design, which aims at a concise view of the subject.

To one other variety of it I cannot, however, forbear to advert, which heretofore, I think, has not attracted sufficient regard. My allusion is to hydrencephalus from metastasis. On a former

occasion I endeavoured an explanation of this phenomenon to which I must be content to refer. Of its existence in grown persons I have seen several instances. Thus induced, the case is peculiar in its nature, consisting in a mere transposition in the fluid, from some other part to the brain, and usually happens very suddenly.

Diversified as the disease is, its duration must be very different, sometimes terminating in twelve* or twenty-four hours, by convulsions, in other instances running on for three or more weeks, though, perhaps, the average period is from ten to fifteen days.

Children between two and five years old are mostly liable to the disease, and, according to Morgagni, girls more than boys, though the contrary is affirmed by Golis, a highly respectable writer.

As occurring mostly in early life, there must be some peculiarity in the physical constitution at this period to create such a predisposition. To the disproportioned size of the head, as well as the greater laxity or softness and vascularity of the brain inviting or retaining an undue amount of blood, has it been ascribed. But I am inclined to believe, as previously intimated, that what in them tends particularly to hydroptic effusion, is the extreme tenuity and delicacy of the arachnoid membrane rendering it less capable to take on and sustain any intensity of inflammation. An injury here, which may lead to an irritation productive of serous elimination, will, at a maturer age, end rather in the extravasation of lymph or the secretion of pus.

Not uncommonly do we meet with susceptibility to the disease, in an increased degree, and in some families so predominant is it, that I have known several children to be attacked—and Cheyne informs us of his having heard of one where as many as eleven fell successively victims to it. This predisposition, in some instances, seems to be influenced by a certain external conformation of the head, which is preternaturally large or irregularly protuberant—though by no means uniformly, having seen it with the most perfect configuration. Generally, perhaps, it is found in connection with the strumous, or some other cachectic diathesis, to which, however, there are also numerous exceptions. Children florid, and apparently robust, frequently betray the same affectability.

* Golis.

As promotive of the disease in early life, it has been suggested by Golis, that the custom of rocking the infant in the cradle, pitching it backwards and forwards, holding it with its head downwards, and other bodily agitations, may have this effect—and also certain amusements, especially in boys—such as standing on the head, hanging by the feet, &c. Be this as it may, dentition is a less equivocal cause. Cerebral irritation from this process is very considerable, evinced among other ways, by the convulsions so often occasioned by it, and is very apt to lead to hydropic effusion. The same effect is sometimes induced by the suppression or repulsion of *crusta lactea*, *tinea capitis*, or those discharges behind the ears attendant on teething, as well as by other acute or chronic eruptions. Blows on the head are a prolific source of the disease. May not this be one reason why children are more subject to *hydrencephalus*? Consequent on the want of the symmetry or just proportion just alluded to, it is to be remarked that they are *top heavy*, and hence, in their tumbles, are very apt to strike the head. Thus excited, it deserves recollection, that in many instances it is not manifested for a long period, weeks, months, or even years. Many or perhaps all the chronic lesions of the brain may conduce to effusions, as will presently more clearly appear.

Conceding the share of these circumstances in predisposing to, or exciting the disease, I am inclined to impute a vast deal, also, to a certain condition of the chylopoietic viscera, which lays the foundation of many of the morbid affections in childhood. That there are causes of *hydrencephalus* acting directly on the brain, or indirectly through the digestive and collatitious organs, is, at all events, determined. The latter seem mainly to consist of the irritations from lodgments of food or from worms, or sordes of different kinds, or habitual constipation, or whatever else induces gastro-enteric disturbance. Between the mucous and arachnoid tissues, there is a ready interchange of affections owing to the intimate consent of parts. But disorder of any of the abdominal viscera may occasion it, and particularly the liver, which has the same sort of sympathy. Every disease, in fine, expending much of its force on the brain, immediately or mediately may end in such effusions. The late pathologists, on this account, ceasing, for the most part, to consider it as an idiopathic or distinct affection, have come to the conclusion that it is nearly always, if not

uniformly, an effect merely of some pre-existent disorder, having this ultimate tendency.

Confessedly, it is very difficult to distinguish this disease from others which have a close resemblance to it, in their external physiognomy. To enable us to do it, we must take a very minute survey of the case, noting carefully its prominent appearances in connection with its previous history. The symptoms to be attended to, as most characteristic of hydrencephalus, are the inclinations to vomit, the constipation, or the aspect of the stools when procured, the state of the urinary discharge, the aversion to light or noises, the strange sounds in the ears, the dilatation or contraction of the pupils, the strabismus, the stupor, the slow irregular pulse, the rolling of the head, the tossing of the hands, or the spasmodic jerkings of the arm and leg of the same side, the impeded deglutition, and interrupted or embarrassed respiration. There is another circumstance very peculiar. Children can bear only the recumbent posture,—taken up, they are disposed to faint or to be sick, and cry or scream, as if from some sudden increase of suffering.

Even, however, after this careful per centation, and with all the lights derived from the elaborate and minute investigations of this point, contained in some of the recent treatises on the disease, every candid physician will acknowledge, that any near approximation to uniform certainty is unattainable. Though in many instances the diagnosis may be verified by a diligent and skilful study of the case, we shall still be often disappointed, meeting with precisely the same group of symptoms, which on one occasion may be attended by copious effusions,—on another, with a very different state of the brain,—on a third with lesions of other parts only,—and on a fourth with nothing whatever to explain the disease. Dissection has abundantly demonstrated the truth of this statement. Not to cite other illustrations of it, I had lately under my care, with Professor Hodge, the child of a medical friend, with supposed hydrencephalus, as strongly designated in its several stages as could possibly be, in whom every organ and portion of structure exhibited a perfectly normal and sound condition.

Great use is it, in a practical view, to be able to decide whether the case be a primary or secondary affection of the brain, and

here the same scrutiny is demanded and the same uncertainty prevails. Of cerebral origin, it will, however, be found, for the most part, to have commenced with sensorial disturbance, and proceeding from the chylopoietic viscera, that these were previously disordered.

To determine the separate and independent existence of the affection in the arachnoid tissue, or in complication with the cerebral substance has been attempted. The most distinctive features, according to Lallemand, of the former, are extreme inquietude and restlessness, with delirium—a tendency to convulsions, and finally, great diminution of sensibility—while the latter is mainly to be recognized by rigidity or spasms of the limbs, or absolute paralysis, and confusion or decay of the intellectual faculties. This, however, is a very imperfect discrimination of the two states, and I am not aware that a more satisfactory one can be made, or of its practical importance could it be, as whatever may be its character, essentially similar measures are to be pursued in the cure.

Of more consequence is it, at least in reference to the treatment, to ascertain the existence of effusion. But this is also exceedingly difficult, and no one symptom, or collection of symptoms, can be implicitly trusted. Cases are numerously recorded where somnolency, even coma, dilatation or contraction of the pupil or immobility of it, or strabismus, or blindness, or convulsions, or partial paralysis, has existed without effusion. But above all, our duty requires us to understand the nature, and to be watchful of the preliminary symptoms, so as to arrest an attack, this being the only period when we can interpose our efforts with any confidence of success. These, I hope, have been detailed with sufficient perspicuity to be intelligible.

Forming our decision of the probable issue of an attack of hydrencephalus, we should be not a little controlled by our conviction of the manner of its production, and the state of the system with which it is associated. Excited by irritation of the chylopoietic viscera, it will *caeteris paribus* prove more manageable than when originally seated in the brain, and where the case is acute and inflammatory, occurring in sound, robust children, than the reverse or the slow and lingering, in habits feeble and disordered, which latter, indeed, is scarcely medicable.

Equally is it intractable, when the result of some other disease,

fever or otherwise, thus terminating in effusion. Even, however, in its acute and most active form, the event is greatly influenced by the simplicity or complication of the case. The cerebral mass being involved, the symptoms are more violent, the progress of the attack more rapid, and the cure more difficult, and, indeed, is very seldom accomplished. These are what are denominated *water strokes*. Moreover, under all circumstances, much depends on the stage of the case. By timely management, it may often be cured antecedently to the effusion, and scarcely ever after this has taken place. Doubtless it is owing to their referring to these different stages of the disease, that we find such opposite reports, among practitioners, of the degree of its curability. Thus, Monro avows his utter inability to do it, and Rush, his distinguished success. Both are right, in relation to the distinctions mentioned. The signs which least equivocally denote recovery are the subsidence of vascular irritation and the cerebral affections, composure of stomach, very bilious or more natural evacuations, healthy urine or an approach to it, or heavy deposits in it, with soft perspirable skin, and, above all, defluxions from the nostrils. This last is the earliest and most certain harbinger of all auspicious change, proclaiming the restoration of natural secretory action.

The unfavourable indications are, of course, in some degree, the reverse of the preceding.

Certain symptoms, however, I have observed to be especially of bad import. They are, constant nausea and great disinclination to be raised, with an inability to sit up, from giddiness and confusion of head, and particularly when attended by tinnitus aurium or other sounds, or by deafness or blindness.

Dilatation or contraction of the pupil, or squinting, is unpropitious, and so is pain in the neck, much more so than in the head. Coma, convulsions, especially spasmoidic jerking of the limbs, or copious discharges of pellucid urine or watery stools, voluntary or otherwise, are usually mortal signs. Cheyne thinks differently as to the urinary discharge. But I am sure he is wrong, such evacuations of urine always denoting decay of cerebral energy. They occur in hysteria, also from frights, and whenever, in short, this state of the brain and nerves is induced. The loss of cerebral energy in these latter cases being only temporary, no serious harm results from it. But in hydrancephalus it is very different. By compression, or otherwise, the vital power of the brain is so

greatly and permanently impaired, that the symptom to which I have alluded is one of the most fatal character. The appearance of the vesicular eruption, formerly mentioned, though not noticed by any writer whom I have consulted, is scarcely less so.

Examinations post mortem exhibit great diversity of appearances, to be ascribed, in part, to the number of affections imitative of hydrencephalus, confounded with it, particularly arachnitis of an active character, and not less, perhaps, to its own varieties, as well as the stage at which it terminates. Death early occurring in the more acute and violent forms of it, we shall usually have phlogosis in the meninges, particularly in the arachnoid tissue, which may be very minutely injected, and, of course, more or less red—while, in other instances, it is opaque, and, though seldom, slightly thickened. The pia mater sometimes presents a net-work of turgid vessels, with here and there small masses of extravasated blood—and the dura mater floridness, with lymphy extravasations, or even adhesions. Nor does the substance of the brain always escape. Generally, when implicated, retaining its natural texture, there are indications of greater vascularity, and the oozing of blood from numerous points of a cut surface, or more positive congestion or inflammation may be apparent.

The case, however, having run a protracted course, still less equivocal evidence is exhibited of the effects of the disease. Connected with accretion of the meninges, particularly of the arachnoid tissue and other changes, such as a granulated or tuberculated surface in the latter, there are adhesions, with occasionally the brain softened, blanched, fimbriated, and some portion of it enlarged or hypertrophied. The lesions are chiefly found at the base of the brain in children, differing, in this respect, from adults, in whom they are oftener met with in the upper and lateral portions of the hemispheres. It is also worthy of remark, that in children, marasmus, or wasting of the fornix, is one of the most frequent events. Differing from all this, it is by no means rare to meet with cases entirely exempt from every description of structural injury—and, indeed, in place of even simple inflammation, to have the aspect of extreme pallor and flabbiness of the brain, in its substance and meninges. Long known and affirmed, this circumstance is now fully established by the careful researches of Bricheteau, Abercrombie, Brechet, and, above all, Andral. As might be supposed, such a state of

parts is mainly incident to the atonic forms of the disease occurring in weak, lymphatic systems. But I have seen it otherwise, in decidedly febrile cases, where the effusion was early and copious. Effusions of serum are contained in the ventricles, or between the membranes, on the surface or in the convolutions of the brain, or, in all these positions. The cerebral mass itself may be thoroughly infiltrated. Golis relates a case where the fluid could be pressed out of it as from a sponge, and I have witnessed several instances in confirmation of the fact. The fluid differs in quality and quantity—sometimes as thin and pellucid as water, coagulable or not—in other instances, turbid, thick and ropy or bloody, or in place of such effusion, there is an imperfect lymph extravasated or a puruloid secretion. The amount of serum varies from one or two to eight or ten ounces, and sometimes it is very inconsiderable. An ounce is deemed necessary to the constitution of dropsy. Duchatelet and Martinet have, however, stated, that out of eighteen cases which they carefully dissected, there were eight with scarcely any effusion. Nothing original or peculiar belongs, however, to this observation, as seems to be claimed. Examples without number of the same kind had been previously reported. Death here probably took place in the congestive or inflammatory stage which precedes effusion, or there may have been merely defective innervation. Tumours of various sorts, scirrhosities, ossifications, abscesses, hydatids, tubercles, indurations or softenings, or other morbid productions or states, have also been remarked. But such, as previously intimated, are more likely mere accidents pre-existing, and, brought at all in connection with the disease, should be considered rather as causes than effects of it.

Derangement of different kinds frequently prevails in the chylopoietic viscera. Cheyne tells us that he has observed the intestines to be inflamed and constricted from spasm, and the liver of a bright red colour, abounding in minute vessels, and sometimes extensively adhering to the peritoneum. The stomach also has been found in the same inflamed condition, and we learn from Yeats, that the hepatic apparatus is pretty constantly affected from simple congestion or inflammation, to great structural disorganization. Equivalent testimony is borne by Abernethy, by Cooke, by Thompson, by Wilson, Philip, &c. Thompson, indeed, declares, that of eleven cases of the disease which he ex-

amined, he detected inflammation in the whole, either in the bowels or liver. My own observations do not go to this extent, nor do I think it is sustained by any weight of authority. Not uncommonly do we meet with worms in the intestines or loads of faeces, or of indigested food or intussusception or other causes of mechanical irritation. Finally, I must repeat, that a condition may exist, completely imitative of hydrcephalus, without a solitary appreciable lesion of the brain elsewhere.

Considering hydrcephalus proper, as a variety of dropsy, its pathology may be included in those general views of that disease which I have presented, with some allowance for the modifications it receives from the peculiarity of structure in which it is located. As to the circumstances specially influencing the effusion, I have nothing to add to the observations previously made. It may be collected from these, that I view it as the result of a weak, diffused phlogosis of the arachnoid membrane chiefly. Lallemand believes that the inflammation may originate in the cerebral substance and extend to this tegument, or conversely, the latter happening more commonly. No reason is there to doubt this, or that it may simultaneously prevail in both structures, more especially, since, on dissection, evidence of such complicated lesions is discoverable.

In denying the identity of the state leading to effusion and arachnitis, under all circumstances, I differ from many of the pathologists of the present day, whose great defect, in my opinion, is an undue proneness to generalization. Not more variant, surely, is pleuritis from hydrothorax or pericarditis from hydropericardium, or peritonitis from ascites, in their common character, than arachnitis from hydrcephalus. Each serous tissue may again and again be inflamed, and without the peculiarity heretofore pointed out existing, not one drop of hydropic fluid shall escape. Correctly considered, the disease itself we are discussing, as well as every other genuine dropsy, consists in that condition, and the effusion is only one of the proximate effects.

It has, indeed, been held, that the latter, so far from constituting the disease, or proving the principal or even accessory cause of death in the case, operates, on the contrary, to the protraction of life by imparting to the brain a degree of tone which otherwise it would lose under such circumstances. No doubt, as alleged, fluid will remain in the ventricles, or, at least, we have

every reason to suspect its existence, in some instances, for weeks, or months, or years, without any serious detriment. But here there is a gradual effusion, and the brain accommodates itself to the distension. The reverse happens, when suddenly induced,—a train of phenomena arising indicative of cerebral oppression. Taken place more slowly, it may often be remarked, that there is such a subsidence of the symptoms as to create an expectation of recovery. This is a treacherous calm. The excited vessels are relieved by effusion, and the case assumes a mitigated aspect. As in other instances of dropsy, however, the extraneous fluid operates as a re-exciting cause, and the disease returns with exasperated force, particularly in regard to the signs of oppression.

Nevertheless, though I place the proper seat of hydrencephalus in the brain, I am persuaded that in many cases it commences in a disordered state of the stomach, intestines, liver, &c. To this conclusion I am conducted by the well-known association between these parts, and by various considerations which may be deduced from the history of the disease,—some of its causes, the great disorder in the digestive organs,—the tenderness in the regions of the stomach and liver,—the obstinate constipation, the character of the biliary secretion, the peculiarity of the stools, denoting vitiation, all of which sometimes prevail for a long time antecedent to the hydrencephalic appearance,—and, lastly, the phenomena on dissection, proving the existence of no slight derangement in several of the abdominal viscera, and, occasionally, little or none in the brain itself.

Not few are the instances, as well on record as within my own experience, of apoplexy, paralysis and other similar affections of the brain, proceeding apparently from gastric or intestinal disorder, and which, the hydrencephalic included, were relieved by remedies addressed mainly to the alimentary canal. The ventricular irritation reflected on the brain is probably, at first, productive of neither congestion nor inflammation, though by continuance, these states may ultimately take place, followed by effusion.

By several of the foreign writers, the secondary nature of hydrencephalus is maintained, and especially by Yeats, who goes further than I have done, deeming it to be the ordinary mode of occurrence. More recently, indeed, Wilson Philip has

declared it to be his conviction, that five out of six cases proceed from some disorder of the digestive organs. But the phrenologist, Spurzheim, while he concedes that the disease may often arise primarily from abdominal irritation, is led to infer from his dissections, that in a still larger number of instances, it is of cerebral origin, in which view I concur.

The preceding exposition of the pathology of hydrencephalus has reference to the decidedly inflammatory state of the disease. We shall presently see that it occasionally exhibits a very opposite character, and where, most probably, the effusion results from a mere erethism of the arachnoid membrane, or even leakage of the exhalent vessels.

Brought now to the treatment of the disease, I have to remark that, in order to be appropriate, it must be adapted to the three stages it presents in its more usual inflammatory or febrile character.

The disposition to it, whether seated in the brain or abdominal viscera, may generally be removed by those remedies which are most successful in the arrestation of the early movements of fever, consisting of evacuations of the alimentary canal, sometimes by an emetic, where the stomach is much affected,—though principally by purgatives, and preferably the mercurial, aided by a state of rest and quietude,—low abstemious diet and a strict adherence to the antiphlogistic plan in every other respect. An irritation, particularly of the abdominal viscera continuing, small alterative doses of calomel, or the blue pill, occasionally worked off by a mild laxative, should be resorted to, and where any pain or uneasiness in the head, or tenderness of the epigastrum arises, leeches to the affected part may be most advantageously applied.

The case, however, having advanced so far as the development of positive phlogosis, the practice is required to be more energetic and decisive. It might be presumed that venesection is the leading and most important measure. That it is useful cannot be questioned,—though, in this mode, the loss of blood in any considerable quantity, is rarely well borne, and in some instances, even with no small activity of the circulation, a single bleeding is followed by considerable exhaustion. Yet it ought not to be concealed, that a very different opinion prevails among some practitioners, and there is a recent writer who urges vene-

section, at once, *ad deliquium*, ascribing the common failure of it in the disease, to inadequate loss of blood. It is Dr. Maxwell of Scotland to whom I allude. He bleeds altogether from the jugular vein, and in a recumbent posture, so as to procure the largest possible quantity of blood, previously to syncope. Two-thirds, of ninety cases, are reported to have been cured by this mode of management. Not to impeach his veracity, I presume that he mistook states of active congestion or phlogosis of the brain for hydropic effusion.

From all that I have seen, I am quite sure it behooves us to proceed cautiously with the lancet. My remarks on venesection are applicable more pointedly to the cases of children, and to that form of the disease where the arachnoid membrane is alone or chiefly concerned—and here, I must repeat, that the remedy, if not well sustained, and carried to excess, may, perhaps, induce that very state of things, promotive of effusion. But our notions of hydrencephalus are exceedingly vague, and the diagnosis of the imitative cerebral disorders is so little to be relied upon that the practice cannot possibly be guided by definite rules or principles. It happens that arachnitis, which by itself is nearly always a delicate phlogosis, may be complicated with inflammation of other tissues, or of the substance of the brain, productive of greater intensity of action, and here venesection becomes the most important of measures. Let, therefore, the practitioner be governed, to a certain extent, by all those considerations which influence him in other instances,—urging or forbearing the remedy, according to the state of the system and the nature of the case.

Topical bleeding, on the whole, answers better, and this may and ought to be repeatedly employed. On this point, I deem it of some interest to remark, that the detraction of blood from behind the ears, or the back of the neck, is far more effectual than from the temples or forehead, the parts more commonly selected—to be explained, probably, as coming from nearer the seat of the affection, which we have reason to believe, in children particularly, is about the basis of the brain. There is a further advantage, that when leeches cannot be had cups may be used in these positions, which are very painful, and perhaps somewhat injurious from the shock or jar of the scarificator, applied to the other places. In the preference I have expressed for the local abstraction of

blood, I am supported by nearly the entire authority of the best of the late writers.

Co-operating to the same end, much will be derived from cold applications to the head, with simultaneously stimulating pediluvia, or cataplasms to the feet, of the same character, by which the temperature and excitement of the one part are directly abated, while the same effect is indirectly attained by revulsion to the extremities.

As far more effectual than the ordinary cold applications, it is strenuously urged, of late, by some of the English writers, to pour a small stream of cold water on the crown of the head for a few minutes,—then to intermit it, and return again to it when required. But since it is admitted to be so hazardous, as to be practised with circumspection—that it is only exacted in cases of extraordinary cerebral excitement, and must, from the necessary alarm created by it in children, lead to great agitation, I have never ventured on the trial of it. There are some, indeed, as Recamier of Paris, who, under such circumstances, have resorted to immersion in the cold bath, and though its success is affirmed, I doubt it, and must condemn it as a pernicious and unwarrantable expedient.

No measure is more important than purging, on the almost unremitting continuance of which at this stage, much depends. To generalize too closely, or to be led away by analogy, in the practice of our art, is among the greatest of evils. That there is in this case some peculiarity which renders it more submissive to copious intestinal evacuations than to large detractions of blood, I am entirely persuaded. This is a truth which I wish to impress, as the result of my own observations, sustained by the suffrage of much higher authority. Not many, indeed, whatever may be their speculative differences as to its pathology, now deny the superior efficacy of this process in the disease. It is called for, as well to reduce the momentum of the circulation as to divert blood from the head, to arouse the torpid condition of the bowels—to remove the foul or irritating accumulations they contain, and rectify the morbid secretions of the liver, which are often most materially affected. To show the propriety of purging, I may state, that in several instances, when a hydrencephalic state was suspected, I have seen the disordered stomach, the comatose tendency, and other alarming symptoms, removed by very free evacuations. Cheyne reports a remarkable case to the

same effect, in which relief was immediately afforded by the bringing away "two chamber pots full of the most extraordinary collection of faeces." Calomel alone, or to be worked off by castor oil, is here generally the most appropriate article. But where worms are suspected, an infusion of the spigelia and senna may be substituted, or the two combinations alternated. Even if none such exist, the latter is scarcely less suited. Early in the history of the spigelia, was it remarked, and I have reason to believe, justly, that independently of its vermisfuge property, it proves very efficacious in the arrestation of the slow fevers of children, simulating hydrencephalus. By uniting senna with it, we gain the purgative operation, and counteract its narcotic or poisonous effects.

Emetics have, perhaps, been too much neglected in the disease. An oppressed stomach I have known to bring on symptoms very imitative, at least, of hydrencephalus, and which were promptly removed by puking. This is sufficiently intelligible. But the same sort of affection will occur, or one attended by similar phenomena, though there may be nothing in the stomach to which it can be traced. Even under such circumstances, emetics sometimes prove useful, probably in the same way that they remove headache, apoplexy, and some other cerebral and nervous affections, which I believe they do, in the first place, on the principle of revulsion, the strong impression on the stomach attracting the blood or excitement to that point, and next, on the reaction of the system, re-establishing a more just distribution of it. To their use I was first attracted, by observing the disposition in the disease alternately to affect the stomach and brain, and when the first was much distressed by nausea or vomiting, the latter became relieved. But as in other hydropic states, they probably go further in their salutary influences by changing that state of the secerning vessels which leads to effusion. Between haemorrhage and dropsy, the close analogy I formerly pointed out, and of the decided efficacy of emetics, in obviating or suppressing the flow of blood, little doubt can longer remain. The late Professors Kuhn and Physick were much addicted to the emetic practice in this disease.

Not unlikely, it is partly in the same mode, by a constant impression on the stomach, that the antimonials, in small doses, particularly the James's powder, have acquired so much reputa-

tion in the diseases of the brain, as apoplexy, and especially hydrencephalus. The transactions of the College of Physicians of Dublin contain a very interesting paper on this subject, by Dr. Stoker, in which it is shown, that the latter article has a tendency, as well to relieve as to prevent these affections, where a predisposition to them is manifested. But, perhaps, something must also be ascribed to their more diffusive action, especially on the skin. Entertaining this notion, the very active diaphoretics have been employed, and to the efficacy of which we have the testimony of many of the eminent Dublin practitioners, Brooke, Cheyne, Crampton and Percival. Even the warm bath has been resorted to by Itard, with a view to the relaxation of the skin and the promotion of perspiration. But, on adequate experience, I suspect it has been rejected, as unduly determining blood to the head, and the application of vapour substituted as a safer process. Deeming all these suggestions rash and inexpedient, I have never carried any one of them into practice, and cannot advise others to do it.

Evacuations having been premised, blisters prove serviceable. The application should first be made to the nape of the neck, and afterwards to the cranium, of a sufficient size to embrace the whole of it, from the ears upwards, to remain on for twenty-four or thirty-six hours, or till suppuration of the scalp is induced, without which it is comparatively useless. That vesicating the head has been opposed by some of the recent writers, I am aware, as tending rather to exasperate than allay irritation. But it is much less painful in this than the other position, where it is recommended, and hence less objectionable. Be this as it may, its utility I was first taught by the late Professor Kuhn, many years ago, and subsequent experience has confirmed it. It will be well, where the delay is admissible, to shave the head, for some time previously to the application, to guard against strangury, so apt to occur from blisters in this position, and which may be thus prevented. Heberden, probably, first observed this fact, which has been abundantly corroborated. Merriman and others, however, maintain that such an effect is salutary, operating as a diverticulum to the head, and for the purpose of inducing it, the tincture of cantharides is given internally—in the propriety of which I cannot concur. From early removing the hair, this advantage is certainly gained, that a larger and

better surface for cold applications is commanded—and, perhaps, by the loss of this warm covering of the head, the force of the disease is directly mitigated. Cerebral affections, acute and chronic, as in certain fevers, or headaches, &c., it is perfectly ascertained, are thus relieved: and why should it not prove useful in the case before us?

It sometimes happens, at this stage, just prior, probably, to effusion taking place, in weak, phlegmatic children particularly, that much restlessness and jactitation are manifested, the pulse being very feeble, and the skin cold and clammy.

No period is more critical in itself, or embarrassing in the management. Depletory, evacuant, and all the other means hitherto enumerated, it is presumable, have been vainly directed, and, indeed, are no longer admissible. Now, general exhaustion exists in which the cerebral and nervous systems deeply participate. Believing it to be a state of collapse of the latter, that occasions the attendant affections, I have acted accordingly. Great reliance do I place on opiates—the carbonate of ammonia, wine whey, or diluted wine, or even ardent spirits, which should be graduated in the use, as the case may seem to require. That these remedies are successful, might be shown by no small mass of cumulative testimony—they operating apparently by the invigoration of sensorial power, and raising up a more healthy excitement, preventive of effusion, or arresting it if already commenced. But whatever may be the explanation, I have seen, again and again, this very condition superseded in this mode, and which experience had taught me was utterly uncontrollable by any other means known to me.

Great surprise, I am sensible, has been expressed by some at my adoption of such practice at this conjuncture, so opposite, as is alleged, to the tenour of authority and general usage. Little, however, do I care for the tenour of authority and general usage, when I know they are wrong. Confessedly too often fallacious, it is owing to a blind faith in them that an inconceivable degree of mischief has, and continues to be perpetrated in all the concerns of this world. Why not, I demand, resort to remedies here which are the very best adapted to the advanced stages of typhous and other low fevers, where the brain is probably in very much the same condition as in the case before us? Convulsions or spasms occurring, and these are common incidents to

this stage of the disease, opiates, at all events, are indispensable, and may be much earlier and more freely administered in all cerebral affections than usually supposed.

Effusion having taken place to any extent, little can be hoped to be accomplished. Granting the existence of absorbents in the brain, it is still true that they act very incompetently in the hydrencephalic affections. Yet, on this account, we should not be discouraged from making the most strenuous exertions. Experience proves that the ordinary means of promoting absorption are here nugatory. An exception, I am aware, has been made in favour of digitalis, and some similar articles, to which I am afraid they are not entitled, though still deserving of trial. Digitalis I have certainly known to be beneficial, rather, however, by calming the circulation, and the nervous system, than by removing the effusion. Mercury holds out the fairest, and, perhaps, the only prospect of advantage. Even though effusion may not have taken place, might it not be serviceable, by changing the state of the secerning vessels, or other pathological conditions?

Commenced in England by Dobson, in the year 1775, this practice was soon adopted, and there are not a few cases reported of its success. Nevertheless, it must be confessed that for some time it has been losing reputation, and is now comparatively little employed, which I am inclined to suspect is owing, in part, to the timid and incompetent course adopted. Disappointed very often in my expectations from it, I have still seen it of manifest utility, and especially in two instances, the outlines of which I shall give.

In 1814, I attended, with the late Professor Kuhn, a child of six years of age, who, having passed through the early stages of well-marked hydrencephalus, presented the phenomena of effusion. Conformably to his established practice, he resolved, if possible, to attain the specific influence of mercury, and with this view, directed calomel to be freely exhibited, while the whole surface of the body should be rubbed twice a day, with mercurial ointment of double the strength of that of the dispensatories. Not content with this, he had gloves reaching to the arm-pits, stockings up to the groins, a belt around the abdomen, and a cap to the head, smeared with the unguent, kept constantly on, all which was perseveringly done till the fourteenth morning, when,

on the appearance of a slight ulceration of the gums, an improvement conspicuously taking place, it was discontinued, after a consumption of fourteen pounds and a half of the ointment. Convalescence henceforward rapidly advanced, without any further inconvenience either from the remedy or the disease.

Not long afterwards I saw, with this distinguished practitioner and the late Professor Wistar, a child nearly of the same age under similar circumstances, in whose case this treatment was pursued, and with an equally happy result. Both patients are now living, and in full health.

Hardly can it be supposed, after the admission I have made as to the uncertainty of mercury, that these cases are cited to inspire any sanguine hopes in the success of the practice. Nor am I insensible to the danger it involves. But it may sometimes answer, and under circumstances so desperate, what else can be done?

SUB-ACUTE HYDRENCEPHALUS.

Nothing more suggests itself to be said, as to hydrencephalus in its acute and inflammatory form. But the disease occurs occasionally in a very opposite state of the system, and is of a more lingering character, approaching, in some instances, the chronic condition. For the most part, it is presented with a dry, husky, pallid, sallow or dingy skin—depraved appetite, imperfect digestion, furred tongue, fœtid breath, panting respiration on the slightest exertion—torpid or relaxed bowels, the stools being of a clay or slate colour—deficient and loaded urine—tumid abdomen, and pain or uneasiness in it—much general attenuation of frame, particularly of the lower limbs, with loss of muscular power—dulness of intellect, and fractiousness of temper. Nothing very distinctive of hydrencephalus is evinced by these symptoms. But ultimately, they are succeeded by a slow irritative fever, with cerebral suffering, expressed by headache, extreme fretfulness—morbid vigilance, or undue somnolency,—and henceforward, such an evolution of the disease takes place as to render its existence no longer equivocal.

Generally it occurs, I think, at a more advanced period of life than the acute variety of it—and in children of feeble frame, and

as is said with heads large, or irregularly shaped. The influence of a strumous habit has also been much insisted on as predisposing to it.

By Percival, it is stated, that out of twenty-two cases, eleven were decidedly thus contaminated, and Mills affirms, that in a large proportion of those which came under his care, such was the fact. The British authorities mostly concur in this opinion. Corroborative of it, we are informed by my friend Dr. Gerhard, in his extensive researches conducted in one of the Parisian hospitals appropriated to the accommodation of children, he found the effusion so constantly connected with a tubercular state of the cerebral membranes, deemed of a strumous nature, as to be led to infer, that the former is really the principal cause of the affection. These views are probably true in relation to countries where scrofula is known to pervade the population. But with us, in this respect, it is very different, that disease being comparatively little prevalent, and I am inclined to believe, from what I have seen, that any condition whatever may predispose to, or excite it—and above all, depravity of the nutritive functions, induced by improper feeding. Two-thirds of the cases are hence found among our negroes, or the poorer and improvident class of emigrants to our country.

From the acute and phlogistic hydrencephalus, it is to be distinguished by the circumstances already enumerated, and in regard to the comparative curability of the two affections, I have only to repeat that it is infinitely less, so that, indeed, I am not aware of having known a recovery from such an attack.

With many of the organic lesions incident to the other form of the disease, which I shall not recapitulate, it is here that tubercular degenerations, as I have said, are chiefly detected. The credit of determining their very frequent co-existence in the meninges with hydropic effusion, is due to Dr. Gerhard—though they had been previously observed in the brain itself by Laennec, and since fully demonstrated by Green and some other writers. Never, perhaps, are marks of active inflammation to be traced in these cases,—the parts, on the contrary, being pallid, soft, or even flabby, and the fluid copious, thin, pellucid and without the quality of coagulability. Even more than the cerebral structures, however, do the abdominal contents suffer,—meeting nearly always with the chylopoietic apparatus more or less affected, and

above all, the mesenteric glands. Not unlikely it is in this state of dropsy that the lymphatic system exhibits the general depravity formerly noticed.

It is deducible from the preceding considerations, that this is an atonic or passive dropsy, or in which, at least, there is, for the most part, rather a deficiency than any increase of excitement, and sometimes, even none at all, the fluid escaping as a mere leakage from relaxation of the extreme vessels. But while I so far concur in this prevalent pathological view, I must protest against the conclusion to which some have recently arrived, that the effusion is almost exclusively the product of tubercular irritation of the brain or its meninges. Common as the coincidence may be in the European hospitals, I am sure it is rare with us, and that our experience goes to show the most prolific source of the affection to be the sort of cachexy brought on by bad nutrition, or what is similar to it, that induced by a residence in miasmatic regions. Dropsies of the same kind in other cavities are well known to be occasioned by various and different lesions of their organs, and no valid reason can I perceive why the present one should form an exception to the general rule.

Effusion in many of these instances has happened before attention is attracted to the cerebral affection, and we are sensible how deplorable is such a state of things. Even where this result is anticipated, the vigorous remedies are precluded. I have seldom seen a case in which venesection could be employed,—though in the early stage a resort may be had to leeches,—and a blister ought to be applied to the cranium. Chief reliance, however, is placed on purging in the beginning, and afterwards, by some, in mercury alone, or in combination with the squill or digitalis. But these remedies prove impotent, and as to mercury, I am afraid that it might be even pernicious in such a bad habit of body. Nor have I greater expectations from any of the preparations of iodine, more recently commended. The case being thus hopeless, it is our duty, when the opportunity is afforded, to do away the condition which may lead to such a catastrophe, by an appropriate treatment.

CHRONIC HYDRENCEPHALUS.

It remains to give a cursory view of what may be deemed another and more confirmed state of *chronic hydrencephalus*. Mostly, its approach is very gradual, and its subsequent progress slow and retarded. Extreme excitability of the nervous system is among the earliest of its manifestations, which, however, is often preceded by severe headache, morbid vigilance, vertiginous affections, or unusual sounds in the ears. The temper and disposition are much changed,—sour, fractious and depressed, or good-humoured and hilarious,—sometimes alternately weeping and laughing, as in hysteria. It is not long before the physical sufferings become more clearly evinced. Debility and loss of command over the voluntary muscles take place, and, consequently, the gait is staggering, with inability in the movements of the hands. The speech is thick, indistinct, slow and interrupted for the want of words, and very often the substitution of one for another in the strangest manner. The face is bloated, with a silly or vacant expression, in the whole, closely resembling the state and aspect induced by habitual inebriety.

It is now that derangements of the intellectual and moral faculties are conspicuously displayed. First the memory is impaired, then the power of reasoning or of judgment,—the imagination being, on the contrary, rather excited. The passions are usually fierce and irascible, and venereal desires vehement in adults, and, in some instances, prematurely developed in mere children. The disease having still further advanced, epilepsy is apt to ensue, and partial palsy, particularly of the mouth, which is drawn to one side or remains open, permitting a constant dribbling of saliva. Deglutition is difficult, though the appetite is voracious,—constipation habitual,—urine deficient, or occasionally profuse and limpid,—the respiration embarrassed on any exertion,—the countenance more fatuous, or deformed by squinting,—the pupils widely dilated, or contracted,—the pulse irregular and intermittent,—somnolency increases to stupor, with sometimes involuntary alvine and urinary discharges. Even in this wretched state, the individual may still be up,—he, indeed, is rarely confined to his bed, and though locomotion is tottering and difficult, or even painful from the vertigo, or confusion of

head it occasions, there seems to be an ambition to attempt it. Death, however, not suddenly taking place by convulsions, or a stroke of apoplexy, which is very apt to happen, the state of things henceforward becomes worse, till finally, with extreme impairment of mental and corporeal capacity, existence degenerates into little else than mere vegetation, and is usually extinguished in one of the modes just mentioned. The duration of such attacks is very indefinite, from a few weeks to several years.

Not long ago I had under my care the case of a distinguished physician of this city, which lasted nearly three years. Golis has recorded one of more than three times this period, and others are to be found of a very lengthened continuance.

Chronic hydrocephalus is incident to every age, though in this shape much more rarely occurring in children, and I think, oftener to be met with after than at the season of maturity or thereabouts. Examples are reported of it even in very advanced life, of which the writer just quoted gives three in persons beyond seventy years.

Many of the causes of the chronic are the same as of the acute disease, operating more tardily. Those peculiar to the former are intemperance, exposure to the sun, and to certain mechanical operations, in which the brain is heated and inflamed,—to which may be added certain moral influences, as intense study, or cares, anxieties and vexations,—attended by lengthened insomnolency. Yet were I to determine from my own experience, I should say, that it may be most frequently traced to some act of violence, blows or falls on the head. Following an acute attack of the disease, I have never seen an instance.

For the diagnosis, I must refer generally to what was said under a preceding head. Between the acute and chronic states of the affection there can be no difficulty of discrimination. But very much otherwise is it in relation to some of the other lesions of the brain, softening or induration, or, indeed, any material structural change of it. The whole of these have, in common, a similarity of aspect, marked by little individuality of features.

As in every affection of gradual formation and long standing, the difficulty of cure in this case is enhanced, and frequently rendered utterly so, by either the antecedent or subsequent disorganization, the causes or effects of the disease. Except in the

early stage of the slightest attacks, we probably have little or no control over this affection.

Great alterations are usually observable, on an autopsic inspection in the membranes, the consequence of inflammation, and the cerebral mass itself affected by those diversified lesions to which allusions have been made on several preceding occasions. Nothing, in short, of this kind, incident to the encephalon and its appendages, under any circumstances whatever, which has not here been detected. The amount of the effusion is usually much larger than in the acute disease, and is sometimes very considerable.

Not materially variant is the pathology of the two states of the affection, and the treatment does not much differ. Bleeding, general and local, purging, and other antiphlogistics are used in the early or inflammatory stage, and an alterative course of mercury, or by some the iodine preparations, with blisters, issues, setons, as counter-irritants, revulsives or drains, at a subsequent period. The diet should be very abstemious, and rest and quietude of body and mind strictly observed.

Dismissing this part of the subject, I turn to the consideration of a still more decided form of chronic hydrencephalus, appearing before, or soon after birth, while the cranial bones are imperfectly united, and such are sometimes the dimensions of even the foetal head, as seriously to impede, or, indeed, totally to prevent delivery, of which, among other instances, a case is related by Blanchard, where four pints of fluid were evacuated. It has hence been truly said, that the moment of birth is the term of existence to many of these ill-fated creatures. *Nascentes moriunter.*

But the disease is generally of more gradual formation, and where death does not speedily happen, which is usual, occasionally runs a course of great length, the head attaining an enormous magnitude, by an accumulation of water. Golis reports a case of a person who lived twenty-seven years,—Aurevill, a second, who reached forty-five years—Gall, the phrenologist, a third, who died in his fifty-seventh year, and there are some others of still greater longevity, less credibly related. As to the size of the head, Monro gives an instance where, in a girl six years old only, it measured two feet six inches in circumference, and I have seen casts of the head in the anatomical collections of Europe, I think not less. Distinctly do I recollect having heard

Gen. Washington say, that he saw a young man, during the revolutionary war, in New Jersey, with the disease, whose head he could not embrace with his pocket handkerchief diagonally folded. These, however, are very extraordinary cases, in each respect,—life being seldom preserved for any length of time, or the size of the head exceeding double the natural magnitude.

Commonly the visage of such a being is hideous. Less than natural, the face is triangular, gradually widening above the cheeks, and ending in the expansion alluded to, which may be enormous, and irregularly protuberant,—sometimes the forehead immensely projecting, so as to overhang the brows, and the occiput correspondently pushed back,—sometimes the protrusion is to the sides, and the top of the head becomes broad and flat—sometimes it rises upwards and a conical shape is assumed, and sometimes one part alone may be thus affected. During these changes, the bones of the face remain stationary, or very slowly augment, and hence the utter destruction of all symmetry and just proportion of parts.

From the want of muscular support, the head falls on the breast or shoulders,—the countenance is devoid of expression,—the intellectual faculties are weak,—the senses, particularly of hearing and seeing, defective, and muscular power little or none. Though the individual may eat adequately, and perform some of the other animal functions tolerably well, he is not nourished,—the growth being slow,—the hue pallid and sickly,—the lower extremities singularly diminutive, while the belly is bloated, and the head, as described, resembling in the whole somewhat the *tadpole*.

“Monstrum horrendum informe injens,” &c.

Nothing is certainly known of the causes of this monstrosity. That there is, however, a strong proclivity to it in some families is determined. Golis tells us that one had six such children, and Frank knew another who had seven of them successively. I have seen three similar instances in a lady of this city, who had afterwards a number of healthy children by the same husband.

Coming on after birth, the affection seems to be owing to the same original cause continuing to interfere with the perfecting of organization.

The affection can never be mistaken. Every other considera-

tion aside, it may always be recognized by the peculiar magnitude and figure of the head, and the state of the cranial bones. As to the probability of a cure, this will presently more clearly appear, and I shall now only observe, that in contradiction to the statements of several respectable writers of what has been accomplished in this way, I do not believe the disease, under any circumstances, is susceptible of a radical and permanent removal, by any known process.

On an autopsy inspection, attention is first attracted to the thinness of the cranial bones—their defective size—irregular shape, and the width of their separation by the sutures. They are usually small, insulated specks of ossification, attached, as it were, to a membranous expanse. The water is found, ordinarily, in the ventricles, which are vastly dilated, and the contiguous cerebral substance denser from compression. But in extreme cases the fluid is contained in the sac of the arachnoid tissue, and then scarcely a vestige of brain sometimes remains. Its convolutions are unfolded, and it is converted into a membrane, its medullary and cineritious parts can no longer be discriminated, or the portions constituting its base,—the pons varolii and the beginning of the medulla oblongata only existing.

In some instances, however, the brain appears to have been originally incomplete in its organization, some of its parts defective and others totally wanting, and here the space which should have been occupied with cerebral matter, is filled with fluid. Nor is it uncommon, in such cases, to meet with a want, or imperfect development of structures in other portions of the body. The liquid in this approaches nearer to pure water than in any other dropsy, and is wholly uncoagulable.

Connected with the pathology of the affection, the only point which I think requires any elucidation, regards the fact, that in some cases, the possession of the senses, as well as the moral and intellectual faculties, is measurably retained. Monro, and very recently Bright, have, indeed, presented instances where there was scarcely any deficiency in this respect. To the researches of the modern anatomists we owe the solution of this problem, who have shown that the encephalon, somewhat like the peritoneum, is a bag, deriving its compactness and solidity from its being folded up, and compressed, as it were, in the bony case which encloses it. Elaborate dissection has enabled them to draw out

the involutions and to make the demonstration stated. Effusion, by progressive distension, accomplishes the same thing, and as, under such circumstances, there is ascertained to be no loss of substance in the brain, its functions may be performed. But this supposes an entire cerebral integrity, while, in those more common instances, where an impairment or total loss of the natural endowments is sustained, the reverse has taken place.

Concerning the treatment I have very little to say. The case proceeding from some primordial defect in the *nisus formativus*, and no other have I seen, I believe our efforts to cure will prove impotent and nugatory. Nor do I consider it very desirable that we should attain the skill to preserve an existence of idiocy or physical helplessness and deformity. Yet some success has been claimed from the use of the diuretics—counter-irritants to the scalp, and, above all, from an alterative course of mercury diligently and long continued. Golis, especially, reports very favourably of this plan, of which I do not credit one syllable, having repeatedly tried it without the slightest advantage.

Medicine here, being so destitute of resources, the case has been resigned to surgery. It is proposed, and there are some facts on record to attest the efficiency of the expedient, to endeavour, by compression of the cranium, to arrest the progress of the case. Bandages have been used, though strips of adhesive plaster are found to answer better. The works of Sir Gilbert Blane contain a full account of this practice with the proofs of its utility.

I have used it and seen it used, with no encouragement. Never did I witness any diminution of the fluid, or any increased tendency to ossification as promised. Besides, it is a mighty hard matter to keep on bandages or adhesive plasters properly adjusted in children. Especially do I recollect how ineffectual it proved in the case of the grandson of a friend of mine, attended by the late Professors Physick, Dewees and myself, where, despite of every effort, it utterly failed. No one now, I suspect, thinks much of this project.

Tapping the sac so as to let out the water, seems, at least, the preferred alternative. The operation was first performed by Le Cat, a French surgeon, in 1751, and next by Roimmet of England, in 1778. Neither succeeding, the operation fell into abeyance or neglect till revived by Dr. Physick, who performed it in 1794. He told me that for some days the child apparently did

well, and then died in a manner which satisfied him of the inexpediency of such attempts. But the operation was subsequently repeated by my late friend Dr. Glover, of Charleston, South Carolina, by whom it is stated, that a cure would probably have happened, had there not been an interposition of accidental and adventitious causes to prevent it. No doubt there are many instances on record of the alleged success of this operation. But how far they were actually so, remains to be determined. Too eagerly do surgeons publish as cures, what turn out to be only partial or temporary relief. The 8th volume of the Medico-Chirurgical Transactions contains a case by Mr. Vose as entirely cured. Conquest, an accoucheur of distinction, in London, soon followed in this career, by whom it is declared that he has operated on nineteen children, ten of which perfectly recovered, and I have collected thirteen further instances, distributed chiefly through the periodical journals of Europe. An example, too, is given of one that ended favourably by an accidental rupture of the sac from a fall, and another, where the fluid spontaneously passed away by urination. But all these testimonies are deficient, as we do not learn whether the cures were permanent or what was the precise condition in which the children were left as to mind or body, or their ultimate fate. On the other hand, the failures have been so numerous and death so often immediately taking place, that the practice is now generally condemned as hazardous and ineffectual.

The operation consists in a puncture by a small trocar or needle to let out the fluid gradually, and then to compress the head by bandages or strips of adhesive plaster. Lizars, of Edinburgh, tapped the head twenty times in one case, and in another the lateral ventricles were penetrated with safety by Tricleton, of Liverpool. Not much of the fluid should be drawn away at once, from the danger of fatal exhaustion. The whole being evacuated, the sac collapses as an empty balloon, leaving only of the head, the fascial, the lateral and the posterior portions of the cranium, and the aspect is really frightful. Even under circumstances apparently so desperate, ossification sometimes commences very rapidly, and we have several authenticated instances of its ultimate completion. Yet a cure did not follow, either effusion returning, or convulsions, or some other

intractable affection supervening, the result of an abnormal state of the brain and its tissues.

An inquiry has been suggested to determine how far it might be proper to extend this operation to acute and other forms of hydrencephalus. Of course it should be reserved only for instances where an accumulation of water is as clearly manifested as the nature of the case allows, and the usual remedies had failed.

On the principle that a desperate is preferable to no remedy, it might, perhaps, be justifiable. Effusion having occurred, there is often, in the acute variety especially, till it excites a reaction, a remission in the disease, and this is the time at which the attempt should be made.

No great danger would probably be incurred from thus puncturing the brain, since injuries of a more extensive and serious character to that organ are often followed by no bad consequences. Experiments on it, with other views, show it abundantly, and we have just seen that the ventricles, in the chronic state of the disease, were harmlessly punctured.

Nevertheless, even admitting the practicability and safety of the expedient, I think we are not to calculate too confidently on its success. As in other dropsies, the removal of the water here, I am afraid, would very seldom produce a cure. The pathological condition occasioning the effusion, probably still endures, and this is the "hoc opus," the great obstacle we have left to encounter. The place and best mode of performing the operation I leave to the surgeons to decide.

ANASARCA.

The dropsies of which I have treated are of the serous membrane. But the cellular tissue may also effuse so copiously as to constitute a dropsy, local or more general, the first of which receives the title of oedema, and the second that of anasarca, each term, however, from its derivation having the same meaning. Not to enter again on ground over which I have so recently travelled, I shall pass by all that has been incidentally noticed in reference to this variety of dropsy in the preceding discussions of the disease, and now address my remarks exclusively to it.

Brought on suddenly in a previously healthy system, cellular dropsy has a very different aspect from that in one shattered or vitiated by diverse organic lesions, and also as it may be simple or complicated with other dropsies, or, indeed, any disease. Exhibited in the first of these modes, it resembles an acute febrile condition, sometimes attended by much local affection, and especially of the lungs,—sharp or dull pain, and oppressed, or otherwise disordered respiration, soon followed, in many instances, by effusion. I have seen the latter to take place even in a few hours, and widely pervade at once the superficies of the body. Mostly, however, the disease shows itself gradually by swelling of the feet and ankles towards evening, which, for a time, disappears by the morning. The intumescence is soft and inelastic, and pressed upon by the finger, pits, which indentations continue for some seconds,—the skin becoming at these points much paler than usual. By degrees the swelling ascends and may occupy the legs, the thighs, the trunk and at last the face and eyelids particularly, or conversely, though rarely, beginning above, progressively descends. The bowels are nearly always constipated,—the urine scanty and high-coloured, and the skin dry, or without perspiration,—the pulse active, tense and corded, with a coated tongue and urgent thirst. In these latter particulars, however, there is sometimes great difference. Destitute of all evidence of undue excitement, we have, on the contrary, the indications of the extremest debility,—cold surface,—feeble circulation, scanty, turbid or thick urine,—emaciation and the general appearance of cachexy. Towards the close of the case, whatever may have been its primitive character, much torpor and heaviness are betrayed, with a low, indistinct fever, the skin still colder and of a waxy pallor,—the distension being so considerable as to force the fluid in some places through the cutaneous pores, and in others, where the tegument is more dense, vesicles or blisters form, which bursting, are followed occasionally by gangrene and mortification.

Effusion, however, may take place, also, in the internal cellular membrane, or there appearing originally, extend itself to the external portions of this texture. Oedema of the lungs is the most common, perhaps, of such affections, though scarcely an organ or structure is entirely exempt. But since we have no satisfactory signs by which it is to be distinguished, not even the pul-

monary infiltration, much as it has recently been attended to, or exacts any specific treatment, I shall pretermit the further consideration of it. Complicated as anasarca is, in its wide distributions, with hydrothorax and ascites, we have, then, as I have said, universal dropsy, constituting a state of things as afflictive as it is hopeless of cure.

Œdema is occasioned by some local irritation of the skin, penetrating to the sub-cellular tissue, or by that arising from an interruption of the circulation, as in the swelling of the feet and legs, in advanced pregnancy, from uterine pressure on the crural vessels, or by a tight ligature around a limb. But it is symptomatic, also, of pulmonary and other diseases of exhaustion, or may be a part of other dropsies by gravitation of the fluid or otherwise. An anasarca or more general effusion proceeds from essentially the same causes as of the thoracic and abdominal affections of the kind, and, indeed, in many instances, is only a part of these,—the dropsies of the two tissues, as we have seen, reciprocally inducing each other by extension. Exposure to cold especially, when the body has been overheated—the irritation left after the eruptive fevers, and, above all, scarlatina and rubeola, or the retrocession of these, or other cutaneous eruptions, acute or chronic,—an excessive plethoric or exsanguineous state, or impoverishment, or other vitiations of the blood itself, and, in short, the whole of the directly debilitating influences, are, however, more apt, in their primary operation, to affect, in this mode, the cellular, than any other membrane.

Conspicuously marked as this dropsy is, even to the eye, it might be passed over without a word relative to the discriminative signs. The only cases bearing any similitude to it are some other intumescences. Common diffusive inflammation of the cellular membrane, as well as that more peculiar species of it, denominated phlegmasia dolens, might most readily be confounded with it. But here, independently of other circumstances, acute pain exists and other evidence of more active phlogosis, and there is wanting the peculiarity of the indentations, on pressure, so characteristic of hydropic effusion.

Generally speaking, it is far more curable than any of its kindred affections. It may, indeed, be stated, that when suddenly induced, in a sound constitution, and restricted to the cellular tissue of the external surface, it usually submits, whereas, if it

slowly comes on, occasioned by visceral organic lesions, or any bad habit of body, or the internal portion of the tissue is involved, or it is complicated with any other dropsy, it is the reverse.

The anatomical characters are also varied by these contingencies. In the simple or purely elementary forms of it, where the membrane alone is concerned, we usually find only the cells enlarged and thickened, or the contrary extremely attenuated, this difference depending probably on the duration of the attack, and the degree of distension. Connected, however, with other drop-sies, or arising from internal causes, the phenomena of course, are such as were enumerated under preceding heads, and consist in every variety of structural lesion.

It is important to know that when the case has been excited by cold, there is usually the evidence of considerable inflammation in some one part of the pulmonary structure, either in the substance or the membranes of the lungs, separately or combined, and here it is especially, I think, we are most apt to meet with œdema of these organs. The same may be said in regard to the effusions consequent on the eruptive fevers, with this difference only, that the phlogistic action is more wide spread, embracing, also, in many instances, to a considerable extent, the abdominal contents and the brain, or the meninges, or the whole.

Let it suffice to state as to the pathology of anasarca, that, for the most part, the effusion is the immediate product of a comparatively slight and diffused inflammation of the cellular membrane, the causes enumerated operating to this effect. But though such is the general fact, it is no less true, that in conditions of extreme debility, and more especially when attended with tenuity of the blood, the effusion takes place, independently of any excitement, and must be imputed to the escape of the fluid through the relaxed exhalents.

There is here an analogous state to that in exsudative perspirations, the principal difference being, that the fluid in the one case is externally eliminated, and in the other deposited and retained in the cellular tissue. Examples of an interchange of these processes I have witnessed. Lately I attended, in consultation with Dr. Phillips, of Bristol, such a case, in one of our most distinguished citizens. For a long period effusion had been going on into the thoracic cavity, when suddenly ceasing, it took the oppo-

site direction, and was poured out most copiously from the cutaneous surface. Continuing in this way for a short time, it then issued from each set of vessels simultaneously, and finally becoming restricted to those of the chest exclusively, it proved speedily fatal from excess. The only exception to the doctrine I have presented in regard to this dropsy, is to be found in the instances of its arising from mere percolation of the fluid into the cellular texture from the internal cavities. These are occasioned in a manner so different as not to be embraced in the same category.

Of the treatment of anasarca, it is to be observed, in the first place, that the same remedies as in the preceding dropsies, are employed in it, with slight exceptions, having a proper regard, in the application of them, to the state of the system. It seems, however, to be conceded, that mercury is here less beneficial, perhaps, in those instances only, where the glandular viscera are not affected, and that venesection and the diaphoretics are decidedly of greater efficacy, and particularly when proceeding from cold. The action may be, indeed, so decidedly inflammatory, and the pulmonary affection so urgent, that a very large loss of blood is sometimes imperatively demanded. I have depleted in this way, as freely as in pleurisy or pneumonia, with a resort to all the other means appropriate to the early stages of these diseases. Not often, however, is such vigorous treatment required, and after moderate sanguineous evacuations, purgatives, diaphoretics, the sorbentia will prove adequate to the removal of the effusions. Nevertheless, I must insist on the indispensability of general blood-letting in the phlogistic forms of this dropsy. Though oftener excited by cold, they, I repeat, also supervene on the exanthematous fevers. Dropsy, I have rarely encountered under either of these circumstances, in which an inflammatory condition was not indicated, and this has been confirmed by numerous dissections.

Many topical applications are used, especially when the effusion is limited, and among these, perhaps the most common is the rubbing of the lower limbs with a view of getting rid of the swelling. But it does little or no good,—the fluid which had thus gravitated into the feet and ankles being mechanically forced upwards, to return again very soon. To soften the skin and render it more perspirable, frictions with warm oil have been pro-

posed, and which, or with ardent spirits and laudanum, warmed, I have seen do good, at least, in painful œdema.

Enveloping the limbs with silk oil cloth sometimes answers very well. No measure more effectually arouses the action of the exhalents of, or changes the general condition of the skin, as is exemplified in the treatment by it of tinea capitis, and other cutaneous affections. An application of wilted cabbage leaves, and still more so, those of the tulip poplar, previously moistened in water, is also useful.

The natural tendency occasionally shown to throw off the fluid by the skin, is more frequently exerted in anasarca than any other dropsy. Cases are related by Bartholet, Quarin and other writers, and some even of complete cures, one, of not the least interesting of which, is given by Tissot of a Russian nobleman, who, nearly in extremity, was entirely relieved by a sweat breaking out from his feet, that continued for a great length of time.

I have more than once remarked, that I had known cures in the same mode, by an exudation from other parts of the body, and also, by letting off the water by puncturing the skin. The latter, I presume, were of the kind induced by percolation of the fluid from the great cavities. But at all times, when the limbs are painfully distended, temporary relief, at least, may be afforded by the operation, and it should be practised. The punctures are to be made by a very sharp-pointed lancet or needle, and care taken that these do not penetrate too deeply, since erysipelatous inflammation and gangrene may be the result. While I am on this point, it is proper to observe, that we are frequently called to encounter these very affections in cellular dropseys. Either in the manner mentioned, or by excessive distension or pressure on particular parts, the vitality of the integuments is destroyed, or so much impaired as to occasion gangrene. The most frightful sphacelus in some of these cases I have witnessed. It is sometimes preceded by erysipelas of a very malignant character, in which the mild applications do not succeed. The best I have ever tried is Kentish's ointment, that is so effectual in scalds and burns. But opodeldoc, the volatile liniment, and such like articles, sometimes answer very well. Much, too, has been said of a strong solution of the nitrate of silver, thirty grains to an ounce of water, applied with a small brush to the surface, and

also of the lunar caustic itself, on the margin of the healthy integument, contiguous to the affected part, with a view to the arrestation of its further progress. But I confess that my expectations have not been realized from the remedy.

The treatment of the gangrene is exceedingly embarrassing. Blisters, so serviceable in other instances, can here be made of no general use. They are, indeed, at times, the cause of the very mischief we would wish them to redress. Compression of the limb, above and below the affected part with a flannel roller, I have found useful. The principle on which this contrivance acts is very intelligible. Neither action nor temperature exists in the limb at the time, and by the roller enough of each is restored to enable it to resist the further encroachments of this fatal process. As far as I know, this is a discovery of my own, and the efficacy of which has been fairly tested.

Nitrate of silver has likewise been recommended in this state,—the common fermenting poultice is still more used—though of late, lotions of the chlorates of lime or soda have nearly superseded every thing else. Notwithstanding what I have said against the use of blisters, they may be sometimes admissible. Two or three cases have come under my observation, where they proved eminently serviceable in checking the gangrene of dropsy. Many years ago, I attended, in consultation with the late Professor Wistar, an elderly gentleman with a rapidly spreading gangrene of both legs from anasarca, which they speedily arrested,—and I saw another in the practice of the late Professor Physick, pretty much under similar circumstances, in which their beneficial effects were signally displayed. Employed at all, they ought not to remain on longer than to excite merely a rubescence of the surface. By a more protracted action, they enfeeble or extinguish the vitality of the part, frustrative of the end in view.

Finally, I must say a few words chiefly on the regimen to be observed in dropsy, and the remarks I am to deliver will apply more particularly to effusions in the thoracic and abdominal cavities and those of the cellular membrane.

As to diet, this, of course, will depend much on the particular circumstances of the case. In the active or febrile forms of the disease, it should be very low, and even total abstinence for a season has proved, we are told, of utility. Not the least interesting case to such purport, in every view, is that of the cele-

brated Dr. Johnson, the lexicographer. Being heavily oppressed and no relief afforded by medicine, he resolved, in order to propitiate Heaven, rigorously to fast for twenty-four hours, at the end of which time copious diuresis ensued, with the happiest results. His piety, which was remarkably tinctured with superstition, led him to ascribe his recovery to the efficacy of this "mortification of the flesh," not recollecting that:

"Nec deus intersit, nisi dignus vindice nodus
Inciderit."

"Never presume to make a god appear,
But for a business worthy of a god."

Roscommon.

Conformably to this canon it would appear wrong to invoke the gods on small occasions. But whether it be so or not, they seldom obey the call. No rule, at least, is safer in philosophizing than never to refer a phenomenon to supernatural interference, where it is explicable by common physical agency. What medical man can doubt the modus operandi of abstinence under such circumstances? The force of the circulation and the amount of blood are diminished by inanition, and it is a law fully recognized that, in proportion to these effects, are the powers of absorption invigorated.

Dropsy of less or no activity demands an opposite course. To sustain and corroborate the system by a more nutritious and generous diet, is here proper. Eggs, or oysters, or jellies, or some other article containing much nutriment in small bulk, so that the stomach may not be oppressed, should be preferred. The effects of diet, however, are to be carefully watched, since the filling up of the vessels is followed sometimes by a very manifest increase of effusion, and when this happens, the food must be reduced, as well in quantity as quality.

Greater difference of opinion prevails as to drinks. These, instead of passing off by the natural emunctories, are sometimes thrown into one of the cavities of the body or cellular membrane.

"Cressit indulgens sibi divus hydrops."

Then it is that this maxim of Horace only applies,—the fatal dropsy increasing by the indulgence of drink. An apprehension

consequently has so strongly prevailed with some as to lead them to enjoin, as much as possible, a forbearance from drinking, and it is alleged, that it has in some instances effected cures. Facts of the kind, however, are of rare occurrence, and the numerous examples of the total failure of the practice have led finally to its abandonment. Difficult and painful, indeed, is it to resist the vehement thirst that often attends, and by the continuance of which such a degree of irritation is induced as to excite or exacerbate fever. More generally now do we endeavour to promote the action of the sorbentia by the liberal use of beverages.

Common water may answer the purpose, though water impregnated with the carbonate of soda, or the tartrate of potash, or the vegetable acids, particularly, will be found more agreeable, and of superior efficacy. Cider and water is a very pleasant beverage of this nature. The juniper-berry tea, however, is still more effectual, and so is an infusion of the buds of the silver pine, or the scabious,* or of the root or seed of parsley. Gin, or whisky and water, are allowable in weak states, and especially, where such liquors were formerly used to excess. Drinks alone have cured dropsy on the authority of Cullen, Sir George Baker, and Sir Francis Milman, not to mention other names of nearly equal respectability. The propriety, indeed, of indulging the patient, in this respect, is so incontestably settled, by the concurrent approbation of the ablest practitioners, that it would be superfluous to attempt to enforce it by any theoretical deductions, or by a recurrence to additional authorities.

Granting that the practice proves occasionally prejudicial, such instances can be deemed exceptions only to a very general rule, and the mischief is so easily detected, as to be at once guarded against or arrested. Drinks, when instead of answering the purpose of their administration, by taking a wrong direction, serving only to increase effusion, and enlarging distension, will, by every practitioner of any sagacity, be timely discontinued or restrained.

My views of the management of dropsy have now been delivered. But in taking leave of the subject, I cannot forbear, from the importance I attach to the consideration, once more to draw attention to those lesions, which very frequently still con-

* *The Erigeron Heterophyllum.*

tinue uncured. Not more absurd would it be to suppose, that a vessel decayed throughout her structure, were repaired merely by emptying the water in her hold, than that dropsy, connected with its usual disorganizations, ceased to be further an object of care, on the removal of the accumulated fluid. It is alike required, and indeed the common practice, when rid of this impediment, to institute a rigid scrutiny, or overhaul, as it were, the economy in either case, to detect its defects and apply the means of rectification, so as to make again all sound and durable, or as far as may be, attainable.

Much of the early treatment of dropsy, when well conducted, is certainly calculated to conduce to this end, or, in other words, to reinstate the order of health. Being, however, neglected, or our efforts not entirely succeeding, what remains to be done is no longer to be postponed, and, perhaps, from a clearer apprehension of the nature of the lesion, on the evacuation of the fluid, it may be treated with greater skill and efficiency. Nevertheless, the derangements of the viscera and tissues involved in dropsy, having been erected into distinct, substantive affections, claiming as such, a separate and ample examination, it would be anticipating my future design, or a recapitulation of what has been previously said, to indulge in any details regarding them at present.

But independently of such positive lesions, or any that are appreciable, a very lively predisposition sometimes endures, and consequently, no little liability to relapses. The causes most apt to re-excite the disease in this state of system, are exposures to cold, indiscretions in eating, the abuse of spirituous liquors or other stimulating drinks, and similar influences, the avoidance of all which is hence to be forcibly impressed and faithfully observed.

No latent phlogosis existing, tonics may be advantageously prescribed, to renovate strength, by an improvement of the digestive and nutritive functions, as the vegetable bitters alone, or combined with the martial preparations, the sulphate or tartarate, the muriated tincture, and particularly the phosphate of iron. During this course, should any tendency to effusion be manifested, it will be right occasionally to interpose a purgative, or the sorbentia, and here the carbonate of potash, with the bitters, is adopted.

Cold bathing, when it agrees well, the test of which is exciting

a glow on the surface, is said to be serviceable, sometimes so in ascites, though more particularly in pure anasarca. Dashing the water on the extremities, to be followed by frictions with the hand or flesh-brush, are likewise so, in the latter case. Bandaging to support the integuments has been practised with utility in anasarca and ascites. To hydrothorax I should think the application of cold, under all circumstances, to be utterly inappropriate, no disease of the chest bearing its impression, in whatever way employed. The practice, in any of its applications, strikes me as hazardous, and should never be adopted except where the constitution is vigorous and sound. Disorganizations of the viscera existing, which so often happen, I should think it could scarcely fail to do harm. The warm saline bath, on the contrary, with frictions, is both safer and more effectual, operating as well to restore the functions of the skin, so essential to a perfect cure, as in various other modes.

Exercise is eminently calculated to obviate relapses and has been found, in some rare instances, to cure the disease itself. As an illustration of its value, the late Professor Rush was in the habit of relating the fact of a poor man, who, despairing of being relieved at home of an inveterate dropsy, determined to seek his advice, and for this purpose travelled on foot several hundred miles. Encumbered by the disease and exceedingly weakened, he, at first, could walk only a very short distance. But as he proceeded, the effusion diminished and his strength returned, so that he was enabled to complete the arduous undertaking, and presented himself on his arrival, perfectly recovered. From this anecdote may be deduced the efficacy of exercise in one instance of the disease, at least,—the value of diffusive professional reputation, and the extent to which it was enjoyed by the great physician from whom it was derived. Commencing with such modes of exercise as are adapted to the chamber or house, the external may next be resorted to as walking, riding, sailing, &c.

Let it be managed, however, as it may by all the resources of our art, under the most skilful direction and with our amended pathology of it, dropsy, in most of its shapes, is a very intractable and fatal disease, to be referred, I repeat, not so much to the difficulty of removing the fluid, which indeed, is comparatively easy, as the eradication of those lesions inducing the effusion. Of the three leading forms, hydrothorax is held to be the least

medicable, ascites next, and anasarca the most submissive to medical discipline. Hydrencephalus, from its peculiarities, I do not here include, its greater fatality being sufficiently known. This estimate on a large scale is, perhaps, substantially correct, though I have no data by which the point is to be absolutely determined. My own experience tells me that, as to the dropsies of the two great cavities, there is no material difference: on the whole, I think, I have been less successful in ascites than hydrothorax.

The reports of some of the hospitals abroad, several years ago, enable us to judge of the fatality then of this disease in the aggregate, the several varieties not being designated. In London, it is stated that one in three of all the cases admitted die, and in Dublin, the proportion is as two to seven. Even this success, which is ascribed to improved modes of treatment, I find to be a subject of congratulation, the mortality being formerly much larger. What would be the result of a comparison of the preceding statements with those of our own institutions I have no means of precisely ascertaining. But I do know that we have not a great deal to boast, and that our reports, candidly given, would show a frightful mortality, though undoubtedly not so considerable as within my recollection. In private practice, and among a class of people the integrity of whose constitutions is not impaired by the vicious habits that so abundantly replenish hospitals with such cases, we seldom meet with dropsy, and called to encounter it under these circumstances, find the disease to be of a milder character and infinitely more curable.

ON SOME OF THE
DISEASES OF THE MUSCULAR
OR FIBROUS SYSTEM.

THIS system comprehends the muscles and their appendages or immediate connections, the tendons fasciæ, aponeuroses ligaments and the muco and sero-fibrous tissues, especially those entering into the composition of the articulations. The most interesting of its affections is, perhaps,

ARTHRITIS OR GOUT.

Both of these terms are very objectionable, and, were it practicable, should be repudiated. As it plainly imports, from its derivation, arthritis means simply an inflammation of a joint, and in this general sense, without discrimination, was used till modern times. To a disease so pervading and peculiarly liable to fluctuation,—occupying in turn every part of the system, the exterior as well as the interior, and presenting the most striking modifications, it is, indeed, utterly inapplicable. The other appellation has been still more unhappily selected. Derived from the Latin *gutta*, a drop, or perhaps more directly from the French, *goutte*, it was adopted during the prevalence of the false pathology, which supposed the disease to be owing to some acrid or peccant humour dropped into the joint, creative of the irritation or phlogosis,—and such was the general adoption of the hypothesis, that synonymes of the term gout are to be found in all the European languages.

To compensate, however, for the meanness and vulgarity of this bad epithet, we have had applied to the subdivisions of the disease a set of titles full of sound and dignity, coming immediately out of the classical fountain of the Greek. When in the foot it is called *podagra*,—in the hand, *chiragra*,—in the elbow, *onagra* or *pechyagra*,—in the knee, *genagra*,—in the clavicles, *cliesagra*,—in the humerus, *omagra*,—in the spine, *rachisagra*,—in the teeth, *dentagra*,—in the tendons, *tenontagra*, &c. Excepting *podagra*, which has been rendered familiar, and consecrated by long and general usage, it were mere pedantry to retain any other of these *jaw-breakers*.

Gout, as I apprehend we must continue to call it, is one of those diseases of the remotest antiquity. The Greeks and the Romans appear to have been perfectly familiar with it, and while formally described by their medical writers, is occasionally sportingly alluded to, especially by their poets, more in the spirit of reproach than sympathy, it being believed then, as very much at present, to be the just punishment, rarely endangering life, of habits to be ridiculed, or more gravely reprobated.

Nosologists usually divide the disease into tonic and atonic, or regular and irregular gout, with some distinctions hereafter to be noticed.

The paroxysm of regular acute gout sometimes comes on without any decisive warning. Twice I have seen it attack with the suddenness of an electric shock. In 1826, I was visiting a patient for supposed dyspepsia, who, in the act of putting on his coat, was seized with such poignant arthritic pain in the elbow, that he became excessively alarmed lest a dislocation had taken place. Conversing some time afterwards with a valetudinary lady, on her general health, she, without any previous admonition, screamed out from a similar affection of her foot. The late Professor Physick told me of the case of a gentleman to whom he was hurried, from an apprehension of some dislocation of the bones of the foot, while walking in the street, and of another for a supposed rupture of the great tendon of the leg in ascending the steps at the entrance of his house,—both of which he found to be gout. Examples of the same kind are numerously recorded. We learn from Van Swieten that he saw a robust man so stricken with gout in descending from his coach, that he thought he had luxated his ankle, and Guilbert tells us, that in the retreat

of some French troops across a bridge, he witnessed an officer so violently assailed by the disease, that at once all power of motion was lost. Even, however, in these very cases, and certainly in the two which came under my own observation, there may have been some precursory disorder of health, and perhaps the pointed indications of the approach of the disease which I am now to mention.

Commonly connected with a coated tongue, the appetite is diminished, or sometimes abnormal, depraved or craving, just before an attack,—the stomach is vexed with acidities, flatulency, and other symptoms of indigestion,—attended by a sense of weight and tension in the abdomen, costive or occasionally disordered bowels,—copious and pallid, though more generally very high-coloured and scanty urine, with, in some instances, an irritable bladder, or, as has been noticed, a blennorrhœal discharge, and an urgency of the venereal propensity. There are, also, yawning and stretching of the limbs, drowsiness, much lassitude and fatigue, itching of the skin, and, in short, a very pervading, and, in some manner, indescribable derangement of diverse functions.

Nor does the mind escape this distempered condition. Not unusually its operations are dull, confused and inefficient,—sometimes so much so that it cannot be applied to any purpose of study or business. The temper, too, is apt to be irritable, sour, petulant or irascible, and I have seen the spirits depressed into moping melancholy, productive of the darkest views of life. For many years, I attended a friend, one of the most wealthy and substantial merchants of this city, who was always thus affected previously to an attack, conceiting every sort of disaster to his fortunes and reputation, which illusion it was vain to endeavour to dispel,—though instantly on the disease fixing itself on a joint, his natural gaiety returned with increased hilarity, like that of incipient inebriation. Frequently, in this fine frenzy, did he exclaim to me, on entering his room, “I feel inspired, and am only fitted to write poetry!”

As more immediately prelusive of a paroxysm, an unusual coldness of the feet and legs, a suppression of perspiration in them, numbness or a sense of pricking along the whole of one or both of the lower extremities, or cramps of the muscles, are to be remarked.

Indisposed in some of the modes noticed, the individual goes to bed, and after a few hours of disturbed sleep, is awakened by the severity of the pain, at first fluctuating, though oftener in some joint, and particularly that of the great toe, or in the heel, instep, or in the whole foot, which, becoming at length more violent, is succeeded by throbbing or gnawing in the part. This becomes inflamed, swollen and intensely florid,—the veins being turgid, and such exquisite tenderness exists, that the slightest pressure, even that of the bed-clothes, cannot be borne, and any agitation of, or an attempt to move the limb, is productive of agony.

The local affection is not independent of constitutional participation. Chills or rigors, anticipatory, simultaneously or subsequently take place, leading to fever. The degree of reaction, however, is very different,—being sometimes moderate, while in other cases it is very considerably marked by a strong, voluminous pulse, hot, dry surface, loaded tongue, more or less cerebral disturbance, the temper singularly worried,—fractious and impatient, with excessive jactitation and inquietude. Towards morning, however, he usually falls asleep, and a gentle vapoury perspiration breaking out abates the paroxysm. Yet it may be otherwise, or it may continue unremittingly for an indefinite period. Even when most mitigated there is not entire relief. During the day, still considerable harassment continues, and towards evening an exacerbation takes place. It is this succession of paroxysms which constitutes what is familiarly called a fit of the gout. These, however, gradually prove milder, till the disease goes off, and frequently by critical discharges from the skin, kidneys or bowels, while at the same time the oedematous inflammation of the joint subsides,—the cuticle partially desquamates, and, excepting some itching, rigidity and lameness, there is restoration to a state of health, very often even better than that preceding the attack. Many are the occasions, indeed, where a regular fit of the gout has operated to disperse a series of the most diversified affections, so that its salutary tendency has become a very popular notion. That it may supplant other diseases is not improbable, though, mostly, its beneficial effects are to be ascribed to the transposition of itself from the interior, where it had vexed and deranged various organs, to the exterior, fixing on some one or more joints on which it wastes its force.

Different is the result, however, when the metastasis is incom-

plete, or any degree of the original irritation within continues. The cure, under such circumstances, necessarily partial, is followed by manifestations of lingering disorder of diverse structures, particularly of the alimentary canal, the liver and nervous system, and hence indigestion, constipation, vertigo, biliary and other vitiated secretions, depression of spirits, with general wretchedness, or violent headache, or wandering pains throughout the body, which condition sometimes suddenly terminates in a stroke of apoplexy or palsy.

The duration of a fit of the gout will be longer or shorter, according to circumstances. Being the first attack, it seldom exceeds a few days, and, on each repetition, the continuance is lengthened, till ultimately weeks elapse before convalescence is established. It may happen, too, that after the disease has subsided in one joint, it seizes on some other, perhaps the opposite one, and runs the same lingering course.

An attack, at first, recurs generally at some distant interval, perhaps once in two or three years. Then it comes on annually, or semi-annually, spring and fall, at length more frequently, and is of longer duration, each succeeding fit, till, in some instances, there is scarcely any exemption from it, except, perhaps, in the middle of summer.

Degenerating ultimately into the chronic state, to which, in its progress, it is prone, it varies materially from the acute form, as well in the constitutional as the local affections. Much pravity of system is exhibited, and especially of the primæ viæ and biliary organs, in the shape of obstinate dyspepsia, torpid bowels, or occasional diarrhoea, the stools denoting a want of bile—deficient, turbid, or loaded urine or gravelly deposits—dry, harsh, sallow or dingy skin—petulant, morose, irresolute temper—and, sometimes, confirmed hypochondriacism.

Nor do the contents of the thoracic cavity escape. There are often very enduring irritations of the mucous membrane of the lungs, from simple bronchitis to asthma or the most oppressive dyspnœa; no inconsiderable cardiac disorder, and hydroptic effusions may take place.

Connected with this impaired or ruined state of the constitution, there is usually less acute suffering in the paroxysm. Moderate during the day, it is exacerbated at night, though even then, more of a teasing ache than positive pain, and the

part is pale, or purplish, rather than red, and with greater œdema. But the pain may be otherwise, and I have seen it as violent as in an acute attack.

The disease is very apt to fluctuate, transitions rapidly taking place. No great fever prevails, and it is more irritative than inflammatory. Commonly the joints lose their strength and flexibility, and become so stiff sometimes as to be deprived of motion.

Little indurated swellings may arise in the articulations of the fingers, to which Haggarth has applied the title of nodosities. Concretions, of a chalky appearance, are likewise formed upon the joints, and calculous affections occur from a deposit of the same kind of matter, the lithate of soda, in the kidneys or bladder, which, though fluid at first, become dry and firm, at last, as a stone.

This is an outline of the symptomatology of gout in its more ordinary and regular form, acute and chronic. But, as already remarked, it presents occasionally several varieties, arising chiefly from difference of location, which hereafter will be noticed.

Gout selects as subjects of attack, and chiefly out of the aristocracy, men of robust frame, of full and corpulent habits, and of a phlogistic diathesis. The physical constitution predisposing to it has been more minutely described, as consisting in a large head, very capacious chest, gross and heavy body, soft, solids full, distended veins, thick skin and big bones. Numerous are the exceptions, however, to this rule, and I have known it in directly the reverse, or in the feeble and attenuated,—frequently in women, and once in a boy of thirteen years of age. The latter is denied by Sydenham, Heberden, and the writers very generally. On this point the language of Hippocrates, which I take from the Latin version of his works, is very strong:

“Puer non laborat non podagrā ante veneris usum.”

It may be affirmed that it is very seldom to be met with before the age of puberty, more generally commencing beyond the meridian of life, and, in its regular forms, is chiefly restricted to the male sex. Eunuchs, according to Hippocrates, do not have it, which, however, is denied by Richter and some other modern authorities. This is, thank God, a point that I have no compe-

tency to decide, such mutilated beings not belonging to our own enlightened country.

Gout is thought to be mainly an inheritance, the sins of the father being visited upon his children to the third and fourth generations, and especially on those who neglect or despise the precepts of sobriety and temperance. To use the language of a late writer, it is as regularly transmitted in this way from the parent to his progeny, in many instances, as any species of property. But it may also be acquired, or, as Shakspeare has said of honours, some acquire gout and some have gout thrust upon them. Come, however, as it may, even

“With the boast of heraldry or pomp of power,”

it is a most unwelcome guest.

Nevertheless, the estimate of its hereditary nature appears not to be founded to the extent commonly received. To this point a diligent inquiry has been directed by Scudamore, the result of which is, that the hereditary exceed only about one-third the acquired cases.

As so large a portion of attacks may be generated, it is right that the causes producing the disease should be pointed out with some particularity, and the more so, since, by the avoidance of them, the origination as well as the development of the disease, when hereditary, can, at least sometimes, be prevented.

Of these, by far the most prolific is an excess in drinking and eating, aided by sedentary habits. No drink seems to be so pernicious in this respect as wine. It is said, that while ardent spirits derange more directly the hepatic apparatus in various ways, wine has the effect of exciting the arthritic affections. But some wines do this more than others. An opinion is very generally entertained in Great Britain, and in which we mostly concur in this country, that claret and other light ascetic wines are particularly pernicious. Yet the French, the Spaniards, the Italians and the people of the north of Europe, who chiefly use such wines, are comparatively exempt from the disease,—while, in Britain, where they are much less consumed, it prevails, perhaps, more than in any section of the world.

That port, the principal wine of the people of that country, is the most unwholesome of all wines, even in a state of purity, I have no doubt whatever, as well from its peculiar qualities as

from actual experience of its effects in those who use it freely. Factitious and adulterated, however, as nearly the whole of it is confessedly in Britain, it must, *a priori*, prove exceedingly mischievous, and is probably one of the chief causes of the widespread prevalence there of arthritic affection.

Not many years ago I read a review of a report of a committee of the British House of Commons on the subject of wines, with a view to a commercial treaty with France, in which it was stated that scarcely any genuine port existed in that country. Among other startling facts, it is mentioned that nearly the whole of it, previously to its being vended, undergoes a process of mixture with some other ingredients, some of which are actually deleterious. In the island of Guernsey there is a large manufactory for the purpose, and out of six hundred tons of wine imported annually on an average of three years, six thousand were exported, it being converted into ten times the original quantity. The liquor substituted is cider, or the cheap common wines of France, which are drugged to give the colour and other qualities of port. The same process is practised at Southampton, in England, and at Leith, in Scotland, in the great manufactories in those places of a similar kind.

Contradictory statements also prevail as to malt liquors. By some, as Sydenham, Van Swieten, Linnæus, &c., they are supposed to be rather preventive in their effects. Yet the preponderance of authority is on the other side,—and certain it is, that the disease has augmented in England since the common consumption of these beverages.

Of cider, the denunciation of its use is nearly universal, in relation to gout. But here, too, there are some opposing facts adduced, among which is, that cider is the popular drink of New England, where the disease is of rare occurrence,—whereas, in the southern states, it is far more general, though, in place of this beverage, ardent spirits and Madeira wine are usually consumed. The circumstance, however, has not been adverted to by those who urge this against the common opinion of the properties of the liquor, that it is *hard cider*, which our Eastern people only use, a very peculiar preparation of which is really efficacious in the prevention as well as the cure of certain stomachic disorders, and hence may be anti-arthritic in its tendencies.

More pernicious than any I have mentioned, according to my

observations, is the habitual use of punch or lemonade, or any other drink prepared from citric acid, though it may be safest to infer, on the whole, that the abuse of any of these articles is, by disordering the digestive organs, productive, in a greater or less degree, of this disease.

Not less operative, in the same way, is an improper indulgence in eating. By some of our highest authorities it is held to be even more so, in the case of either an enormous consumption of ordinary food, or of that moderately,—high-seasoned and stimulating, habitually taken, and which is sufficiently probable, when we advert to its ultimately debilitating and deranging effects on the stomach and its connections.

Of the dependence of gout on the habits of living, no stronger proof can probably be supplied than from the annals of this city. When I commenced my professional career, the disease abounded in the higher circles, and then it was the practice to drink punch in the forenoon, to continue it at dinner, or to resort to ardent or malt liquors, followed by a liberal use of diverse wines, closing the evening with substantial suppers and stimulating potations. But, in this respect, within the last thirty years, a signal change has taken place. No punch or distilled spirits, and comparatively little malt liquor, has been consumed, and the custom of supping is nearly extinct. Temperance has superseded debauchery or excess, and gout thus deprived of its aliment is fast perishing away. My opportunities have enabled me to ascertain the fact, that so late as the commencement of the present century, a hundred cases of the disease existed in this community where one is now to be met with, and with few exceptions, these are the remnants of other days, serving as memorials of a state of society, of which there are scarcely any other traces to be recognized. Literally is it true, as expressed by May, one of the oldest of the English dramatists:—

“From our tables now, no painful surfeits,
No fed diseases grow, to strangle nature,
And suffocate the active brain. No fevers,
No apoplexies, no palsies, no gouts
Are here.”

Contemplating this happy reformation, who can forbear to exclaim with the fair poetess,—

“’Tis to thy rules, O temperance! that we owe
All pleasures which from health and strength can flow;

Vigour of body, purity of mind,
Unclouded reason, sentiments refin'd,
Unmixt, untainted joys, without remorse,
Th' intemperate sinner's never-failing curse."

To the causes of gout must, as previously intimated, be added sedentary, indolent, or intensely studious habits.

It is well known, that in the common orders of life, the disease hardly exists, and infinitely less among the higher classes who pursue occupations of active industry. Neglect of the exercise of walking has particularly an effect, and among other evidence of it which we learn is, that while the people of Edinburgh, who, from the location of their trade at Leith, the seaport town, a mile or more distant, usually ride, are very liable to the disease;—those of Glasgow, the practice of whom is different, are nearly exempt from it.*

Not doubting the influence of this custom, to a certain extent, I am still inclined to impute more to a wider difference in the character and habits of the inhabitants, in other respects, of these two cities. Edinburgh is the abode of the opulent, the noble, the learned, and also the refuge of nearly every veteran of Scotland, of the military, naval, or civil service, who returns from the performance of arduous and lengthened duties, in distant and sickly climes, with shattered constitutions, to enjoy at home luxurious ease. The one city has claims to the highest intellectual society, though voluptuous, and even grossly dissipated, at least it was so in my time, and the other the reverse, or that marked conspicuously by economical prudence and active, stirring, money-making industry. Thus contrasted, can the disparity, as to the relative prevalence of the disease in the two places, be a matter of surprise?

Equally is it determined that men of great mental endowments or application and distinction, have been singularly prone to it, of which examples might be cited from the history of all ages.

Treating of gout, Sydenham, who was a martyr to it, says, "What is a consolation to me, and may be so to other *gouty* persons of small fortune and slender abilities, is, that kings, princes, generals, admirals, philosophers, and several other great men, have thus lived and died: in short, it may, in a more especial

* Scudamore on Gout.

manner, be affirmed of this disease, that it destroys more rich than poor, more wise men than fools, and, which seems to demonstrate the justice and strict impartiality of Providence, who abundantly supplies those that want some of the conveniences of life with other advantages, and tempers its profusion to others, with equal mixture of good and evil, so adapted to our weakness and perishable condition, as is, perhaps, admirably suited to the present state."

From this train of reflection many seem to have derived consolation or comfort. Few are ashamed of having gout, however acquired, and there are some who affect it, as denoting antiquity of blood, elevation of rank, the temperament of talent, the dignity of association, or even an intemperate addiction to wine as the exclusive drink of the high-born, the polite and accomplished.

Concerned in the predisposition to the disease, climate ought to be mentioned. Gout is rarer in the tropical and hyperborean, than the temperate regions, and especially where the latter are humid and austere. Much depends, undoubtedly, on the habits of the people, though it is affirmed, that, *cæteris paribus*, there is a material difference. Certainly, in this city, the seasons of the most frequent occurrence of the disease are early in the spring and late in the fall, when the weather is damp and chilly.

An hereditary or acquired tendency to it existing, the paroxysm may be readily excited by numerous circumstances, such as grief, vexation, or any anxiety or trouble of mind,—the indulgence of violent passion, particularly the rage of anger, which, indeed, is quaintly called by an old writer "the midwife of gout," from its so frequently bringing it forth. Farther, by inordinate venery, fatigue, and the loss of sleep, cold feet, or compression of these by tight boots or shoes—and, also, a contusion or strain of a joint, the sudden change from a full to an exceedingly low diet, or the converse, and above all, by particular articles of food or drink. The acescent flatulent vegetables or fruits will often induce an attack very promptly, and still more so the sour beverages. Lemonade will sometimes do it in a few minutes: in one of my friends a single glass of claret or champagne had the same effect, and another informed me, that even the odour of cider had brought it on in him. This, indeed, so often happened by merely entering the repositories of the liquor in a state of fermentation,

of which he was a large manufacturer, that he had been compelled to desist from the practice.

Gout may be so faintly, or ambiguously exhibited, even in its regular or articular form, as not to be readily recognized. It is to be mistaken for any phlogosis or irritation of a joint, and can only be discriminated by a careful perquisition into the case. Not a little may be learned from the precursory symptoms—sometimes from the existing appearances, and particularly from the affection being permanent or otherwise. Gout is nearly always changeable, while the imitative lesions, with the exception of the rheumatic, are the reverse, or fixed till their subsidence.

It is rheumatism, under all circumstances, which bears the closest affinity to it. Coming, however, to the history of that disease, we shall find they vary so materially, that they seldom need be confounded.

The leading particulars in which they differ, I shall now only mention. Gout belongs chiefly to the higher class of society, is the result of a series of habits which vitiates the nutritive processes, or is received as an inheritance without sometimes any obvious excitements, and once occurring, is apt to be repeated throughout life at certain intervals, with considerable regularity. On the contrary, rheumatism is met with almost as exclusively among labouring people, and seems to have as an only cause, the influence of cold in some mode of application. The former is pretty uniformly preceded by derangement of health, and the latter not, and is wanting in the same liability to stated recurrences. The common seat of the one is in the smaller, and of the other in the larger joints,—and though, in each instance, swelling takes place, with great suffering, these incidents are not identical, gouty inflammation being far more bright, florid and polished, with a greater proneness to oedema, and subsequent desquamation, and the pain is peculiarly gnawing or lacerating and deep seated. Gout, moreover, seizes on a single joint, and rheumatism on several, as a general rule. The fever in the one is unsteady, alternately very high or low, or scarcely any, in quick succession, with little perspiration, and in the other is continued or remittent at long intervals, and attended pretty constantly by copious sweats. The distinction, however, on which more reliance may be reposed, is, that gout always originates internally,

and rheumatism very seldom. Nevertheless, there is a compound form of the disease exceedingly perplexing, induced by rheumatism falling on joints, previously weakened by arthritic attacks, causing what might be properly called rheumatic gout.

In its regular form, gout is rarely, or, perhaps, never immediately fatal. As I have said, its tendencies, indeed, are mostly salutary, clearing away other affections, and re-establishing, for a time, the order of health. Death occurring from it, an important vital part becomes affected, or the constitution is gradually undermined, and some one of various lesions as its consequences, is induced, ending mortally.

The issue of an attack, therefore, may be presumed to be favourable, when the constitution is sound, particularly the viscera, and where the disease, entirely quitting the interior, becomes immovably fastened on the extremities. Convalescence is ordinarily denoted by the tongue becoming clean, with a return of appetite and good digestion—the stools more natural, lateritious deposits in the urine, the skin relaxed or moistened, and,—with these a subsidence of vascular and nervous irritations, and of the local inflammation, and intumescence.

The adverse circumstances are, a decayed system, weakness of the primæ viæ, or an imperfect translation of the disease outwardly, or fluctuation in the seat of it, or proneness to recede from the joints to the internal organs, attended by irritative fever, and much nervous and mental disquietude.

With some accuracy the anatomical characters in gout might be inferred from the preceding account. Death seldom taking place in the acute stage of it, except by a metastasis to vital organs, by which the joint is relieved, of course we know little of the articular appearances. In the more recent attacks, however, inflammation, with a peculiar albuminous sort of exudation, or serous effusions, have been noticed in the joints. Chronic cases present every variety of structural lesions. The synovial membrane is essentially altered, the bursæ mucosæ enlarged and indurated, the cartilages absorbed, the exposed surfaces of bone smooth and polished, or where such destruction has not occurred, a firm ankylosis, wasting of the ligaments or the reverse, thickening of them, and throughout the articulation, deposits of earthy or saline matter, generally the lithate of soda. These are among the products of the more violent and inveterate attacks.

Correspondently less are such as appertain to the inferior grades of the disease. As regards the internal lesions, it may be enough to state, that the stomach and bowels, the liver, the kidney, lungs, heart and brain, are occasionally met with in various degrees of inflammation, engorgement or disorganization.

That I should enter, to any extent, into the controversy which has so long prevailed relative to the pathology of this disease can hardly be expected. Till the time of Cullen, who satisfactorily refuted the hypothesis, it was, with scarcely an exception, regarded as originating in some morbid condition of the blood, by which a humour, with an acid or an alkaline property, or some acrid salt, was generated and dropped into the affected part. The very term *gout*, as we have seen, expresses such a notion. These suggestions of a crude pathology are so completely set aside, that I shall dismiss them without further animadversion.

My own conviction is, that it is primarily an affection of the digestive and assimilative organs, intimately connected with lithiasis. Both conditions are induced by a train of similar causes, and are prevented or palliated by similar means. It has also been shown, by the analysis of the chemists, that the calculous concretions in the kidney or bladder, and those which form in the joints, called *chalk-stones*, are sometimes identical, being mostly urates of soda. Not unlikely, the same diathesis is common to the two diseases, and the product of it may be thrown off by the kidneys, or the skin, in confirmation of which, we learn that the urine and perspiration in each case, have an excess of acid, the uric or phosphoric, most generally. These emunctories not adequately performing their offices in this respect, an accumulation of the acid results, and calculous formations take place in the kidneys, bladder or articulations, or in each, as may happen. The latter, however, is not a common event, and I have rarely or never seen a coincidence of this state in the different emunctories. Generally, the kidneys and skin are vicarious in their operations, and where the powers of the one fail, those of the other are correspondently invigorated, on which account it is that they so seldom act concurrently in this case. Let it not, however, be supposed, from the views here presented, that any countenance is lent to the notion formerly alluded to, of the dependence of the gouty paroxysm on such deposits in the joints. These must be deemed the effect, not the cause of the disease,

which is shown to be true, independently of other considerations, by the fact, that they occur at the close, not at the commencement of an attack, and for the most part, are altogether wanting.

As previously intimated, gout has its origin in a vitiation of the digestive organs, and whatever subsequently arises, is to be traced up and assigned to this starting point, as the "*fons et origo mali.*" Thus, the local affection of the joints, as well as the excitation and fulness of the vascular system, so frequently concomitants of gout as to be considered by some as really constituting the disease itself, I hold to be merely secondary and subordinate.

Of the precise nature of this primary lesion we are imperfectly informed. The advocates of the hypothesis have, with a single exception, offered no explanations of it. Broussais, to whom I now allude, in conformity with his dominant propensity to generalize, declares it to be an inflammation of the gastro-enteric mucous surface, to which, indeed, he seems to impute all things. That such a condition sometimes ultimately takes place, we are not permitted to doubt,—though it is equally true, that more frequently, it is merely a functional derangement, very analogous in its leading features to certain forms of dyspepsia. Brown, indeed, calls it "the indigestion of the luxurious." It is hence very probable that, in common with the more normal dyspeptic affection, the inception of gout is to be referred to the centre of the ganglionic nerves, and which disturbance exercises a very material influence over the case throughout its whole career. Looking at the causes of the disease—the phenomena of its rise and progress, and in some respects, the method of cure, the conclusion can scarcely be resisted.

On the extremities becoming affected, the internal irritation is inmost relieved, and as happens in the exanthemata, such is the natural process of cure. This opinion differs from that of some of the modern pathologists, who maintain the topical affection to be primary, leading to constitutional derangement, and also, that of others who think it is merely a symptom, excited and kept up by the persistence of the irritation in the internal tissues. These hypotheses, partially applied, are correct. Denying the originality of the local lesion, it is yet not unreasonable to suppose that it may operate to the aggravation of the general disturbance of the system, and it is more apparent, that there are cases of an

occasional occurrence, where the disease, still lingering in a degree in its primary position, may have the effect imputed to it. Conceding this, my views remain uninvalidated as having reference only to those instances of the disease where the metastasis is complete.

The seat of the local affection being among the parts directly subservient to the articulation of the joints, it has many of the characteristics of the inflammation of the fibrous textures. Whatever may be its violence, genuine arthritic action, strictly confined to these textures, never ends as common phlogosis in the effusion of serum or lymph, in the secretion of pus. These taking place, the inflammation has invaded other tissues, the surrounding cellular or the serous synovial membranes. Its proper terminations are such as previously noticed. Yet it must be confessed, that there are very striking singularities in gouty action, and that the whole subject is not without obscurity. Located in precisely the same parts as rheumatism and various other inflammatory affections, it is so far from having an identity with them, that usually it may be at once discriminated. As an attempt merely at an explanation of these differences, I shall offer the conjecture, that the idiosyncrasy in question is owing to the peculiarity of the cause of gout, it being determined that in the modification of morbid action, the cause of it has no less influence than the structure which it may occupy, and that these two circumstances, taken in connection with the existing diathesis, produce mainly the peculiarities of the disease. Not satisfied, however, with this exegesis, it has been advanced by some that the whole of the affection is purely neuritis or neuralgia. That the nerves may be implicated, I have admitted, and I will now add, probably to a greater extent than in any of the phlegmasia, not excepting rheumatism. To this circumstance, among other features of the disease, I suspect the extraordinary disposition to metastasis to be assignable. But to refer the entire disease to such a state were surely a hasty conclusion from a very superficial examination, warranted neither by the prominent symptoms, the phenomena on dissection, nor the mode of cure.

Consulting most of the writers on the subject, it will be perceived that very little is prescribed in the paroxysm of gout, and that it has become too much the practice everywhere to let it spontaneously expend itself. To envelop the limb in flannel

and to urge a patient endurance of the pain and confinement, constitute, indeed, proverbially, what is chiefly done in podagra. That a system so inert could only have arisen from the want of confidence in the known remedies, or to a conviction of the injurious effects of intermeddling at all with the case is apparent. As long ago as the time of Ovid, and from the same causes, such an opinion seems to have been entertained. The poet, at least, declares,

“Tollere nodosam nescit medicina podagram.”

Experience, however, has taught me, that much can be effected in the paroxysm, and that we are called upon to use remedies as unhesitatingly in it as in any other acute inflammatory affection. To this state of the disease, I am, in the first place, to address my remarks.

Of all the means I have tried, the most decidedly efficacious is active purging. This is a very ancient practice, having prevailed, with no interruption, from the earliest times, till it was prohibited by Sydenham, on purely theoretical grounds,—it being, he observes, “an invariable law of nature that the peccant matter of the disease should be thrown out by the extremities—emetics and cathartics will have no other effect than that of counteracting this design.”

Need I observe that the example of Sydenham in this case has been highly pernicious, having led to the desertion of a practice which, if judiciously applied, is safe, and particularly calculated to overcome this most distressing disease.

I have before stated that gout is intimately connected with depraved conditions of the alimentary canal. Whether this opinion be correct or not, it may be confidently affirmed that the practice it dictates is sound and fully warranted.

For forty years I have habitually employed purgatives in the paroxysms of gout, and with unequivocal advantage. Not content with simply opening the bowels, I completely evacuate, by purging, the entire alimentary canal, which being accomplished, the distressing sensations of the stomach are usually removed—the pain and inflammation of the limb gradually subside, and the paroxysm, thus broken, speedily passes away. To effect these purposes, however, it is often necessary to recur to the remedy repeatedly. As to the particular purgative, this will depend on

circumstances. Considerable depravation existing in the chylopoietic viscera, I prefer a dose of calomel or the blue pill, to be hastened in its operation by magnesia alone, or with Epsom salts. The mercurial purge is seldom again required, and the bowels may be kept freely open by any of the milder laxatives. Generally, however, the most effectual of this class of articles, and especially with a view to the immediate reduction of the topical affection, is the following mixture, a tablespoonful of which should be given every hour, till it purges copiously.*

Eminently beneficial as an evacuant undoubtedly is, I do not think that all its effects are ascribable to this mode of operation. Colchicum has a peculiar property to which some of the credit must be assigned. Given alone, it is less serviceable, and hence, we are to seek in a combined influence, for the salutary tendencies of the mixture.

My practice with regard to purging in gout, differing materially from the prevalent one, it may, perhaps, be expected, or at least desired, that I should justify it on other grounds than my own declaration of its efficacy. To its defence I can bring both reason and authority.

Granting the disease to be preceded or accompanied with those symptoms of depraved stomach and bowels which I have noticed, no one can doubt, for a single moment, of the propriety of resorting to the use of purging. There is here, indeed, exactly that group of affections, which the common observation of practitioners has taught is most readily removed by the thorough evacuation of the alimentary canal.

Why we should adopt a different course in gout, and refuse the remedies we have found so efficacious under nearly similar circumstances, in other diseases, is a question I suspect that cannot be very satisfactorily answered. Further may it be urged, in support of the purgative plan, that the paroxysm is always abated, if not removed, by the coming on of diarrhoea or dysentery or cholera morbus. This interesting fact did not escape the notice of Hippocrates, who tells us that the disease is never cured where the bowels are *constipated*, except by the providential occurrence of a dysentery, by which he seems to mean any

* R.—Magnes. calc., 3j.; Sulph. magnes., 3ij.; Tinct. colch., 3iss.; Aq. cin-nam. simp., 3iij., fl. sol.

spontaneous purging,—and adds, that he had witnessed the best effects from the profuse discharges he emphatically calls a “melting down of the bowels.”

Musgrave, too, one of the earliest and best of the professed writers on gout, declares that, “during the paroxysm, a diarrhœa often takes place, which carries off the tumefaction and pain.” “Cures effected in this way,” he also remarks, “have this advantage, that they do not return for a long time afterwards.”

The confession, on this subject, of Sydenham himself is exceedingly curious. Treating of gout, suspended by diarrhœa, he advises, as the only means of restoring the paroxysm, deemed by him essential to health, to give certain medicines to check the discharge from the bowels, which, he says, when completely stopped, the gout comes “thundering back on the extremities.”

Nothing can be more conclusive of the efficacy of diarrhœa, and hence consequently to be inferred of purging, in removing the arthritic paroxysm, than this acknowledgment.

The treatment of gout by purgatives, I repeat, is not a new practice. My limits, however, will not allow me, at present, to offer, in detail, a retrospective history of what has been done in this way. It may, perhaps, be sufficient to state, what I have before done in some degree, that, commencing with Hippocrates, the practice continued till put down by the proscription of Sydenham. During this long period, it was pursued successively by the physicians of Greece, of Rome, of the school of Egypt, and of modern Europe after the revival of letters. Nearly the whole of them concur in the propriety of the practice, and some, in speaking of its success, use, if not the language of enthusiasm, certainly the tone of entire confidence.

Nor is it unworthy of recollection, that the purging, in these cases, must have been exceedingly active, as, anterior to the era when the Arabians cultivated medicine, the cathartics in use were exclusively of the most drastic kind. Nevertheless, we do not perceive, in scarcely any one work which has descended to us, any of those dangerous consequences pointed out or alluded to that have so much alarmed modern practitioners and deterred them from the employment of purgatives.

Great, however, as was the homage paid to the opinion of Sydenham, it did not prevent occasional dissents from it. Turning over some of the treatises on this disease, in reference to the

present inquiry, I was surprised to find how many writers there are, who, contemning his authority, had adopted the ancient practice. Cheyne, one of the most distinguished of the age, acquaints us that, in his time, "some eminent physicians had so little regard for the opinion of Sydenham in this matter, that, in the fit of the gout itself, they never scrupled to *drive it off*, both in themselves and others, by *strong, quick and active purges.*"

Even Sydenham himself admits, notwithstanding all his theoretical prejudices, that, during the operation of purgatives, the patient feels no pain, or at least very little, and that, if the catharsis were kept up for several days, he would most probably be cured. It is, moreover, an interesting circumstance, and one which strikingly illustrates the propriety of the course for which I am contending, that almost all the remedies of any reputation, whether they be the preparations of regular bred physicians, or of empirics, act powerfully on the bowels and contain, for the most part, as a basis, the hermodactylus or the extract of scammony. Especially does it appear, that during the prosecution of the experiments made in Europe some years ago, with different substances, for the purpose of detecting the leading ingredients of the *Eau Medicinale*, an article of which I am subsequently to speak, by a resemblance in effects, that several of the more drastic cathartics, as the elaterium and white hellebore, were employed. Though among the most harsh and violent of all our purgatives, these are still represented as having evinced such considerable powers in certain cases, as very generally to be considered, at the time, as the chief constituents in the French nostrum. Nor does it less appear, that formerly, the gamboge, a purge violently distressing to the bowels, had acquired so much repute, that, on this account, the title of "gutta ad podagram" was conferred upon it. Taking the whole of what I have said on this point into consideration, I think we are entitled to conclude, that purgatives may be safely and efficaciously employed, and that they have hitherto been strangely and inconsiderately neglected or repudiated.

Cathartics being so beneficial in gout, it is reasonable to suppose, from analogy, that emetics might likewise be so. In the practice of antiquity, as well as of more recent times, they were, indeed, made a part of the treatment, and came to be excluded with the other evacuants, pretty much through the influence of

Sydenham. The most conspicuous of those by whom the use of them is commended, are Celsus, Cælius, Aurelianrus, Demetrius and several of the Arabian school, to which may be added, among the modern authorities, Fabricius, Hildanus, Gesner, Stoll and Scudamore, &c. No one, however, seems so strenuously to have endeavoured the revival of the practice as Small, the author of a very good paper on gout.* He urges it as affording prompt relief of the pain and inflammation of the paroxysm. Considering the nature of the case and the properties of the remedy, such an effect is probable, though I confess my experience is not sufficiently extensive with it to lead to any very decided confirmation of its utility. It is found so in all painful affections where the nerves are deeply concerned, as odontalgia, paronychia and neuralgia, which it wonderfully controls, and these striking analogies lend no slight support to the facts previously adduced. Emetics, however, at all times are much resisted in the higher classes of society, where chiefly we meet with the disease, and this, and not any apprehension of mischief, has prevented my using them. Yet there are cases, as where the stomach is greatly disordered and the tongue loaded, in which I have prescribed them with advantage. Gout, moreover, may be acquired in miasmatic districts, and connected, as it sometimes is, with intermittent fever, and a very oppressed state of stomach, emetics I have found, in some instances, indispensable to the cure. Especially do I recollect the case of a gentleman of this city, who was compelled annually to visit, in the autumn, a large estate he owned on the banks of the Susquehanna, which he was endeavouring to reclaim by drains and embankments. Never, on these occasions, did he escape a combined attack of the two diseases, and I uniformly found that without an emetic every thing else proved ineffectual.

Estimating, as I do, evacuations of the alimentary canal in gout, I have seen too much of the practice of my profession to confide exclusively in any one curative process in a disease which presents so many diversities. As in all other instances, the remedies here are to be accommodated to circumstances,—and, hence, I sometimes call into requisition, in the different stages or forms of gout, every variety of treatment.

* Med. Ob., vol. i.

It will be necessary to resort to the lancet where it is indicated by a strong febrile pulse or irregular determinations of blood, or to relieve intense local phlogosis, and such conditions existing, it should precede the use of evacuants of the alimentary tube, as well as all other measures. Cases have come under my care in which I have bled very freely and with decisive utility. But these do not ordinarily happen, and since I have relied so much on purging, the necessity of the lancet has been infinitely less. Not the least of the great advantages of it in this disease, is that the increased pulse, the temperature, and other febrile symptoms as well as the topical affections, are removed. It has been remarked, too, very generally, that venesection is not productive of as much benefit in gout, from its peculiar nature, as in other phlegmasiæ, and which I believe to be true. Nevertheless, such is its importance as to be indispensable under the circumstances previously stated,—and though condemned by some of the European writers, is sustained by a host of the very highest of our own authorities, from an early period down to the present day. No other foundation than an idle prejudice has the objection to the practice, on account of its tendency to induce retrocessions of the disease. Frequently as I have employed it, none such, at least, have I observed, and in this opinion I know that I am well sustained.

From a conviction that it is one of those diseases dependent on morbid matter, and that the skin is a natural emunctory for its discharge, many of the disciples of the humoral pathology indulged in the very free use of diaphoretics in gout. As subordinate means, these, unquestionably, are sometimes of service. Nature, whose intimations ought always to be consulted, and which frequently may be trusted, clearly points to their use. The paroxysms of regular arthritis, when spontaneously cured, go off commonly with diarrhoea, diaphoresis or diuresis. I have shown how efficient is an imitation of the first of these natural attempts by purging, and hence, that of the others may be analogically inferred, independently of any more positive testimony. But there is a time or state of the disease in which diaphoretics are proper only. It is, after the reduction of the force of an acute attack, or earlier in those less active cases, arising out of an originally feeble frame, or one broken down by a course of vicious indulgences. The cordial and stimulating articles in the

latter state are mostly to be preferred. Combinations of the carbonate of ammonia with laudanum, aided by wine whey, are admirably adapted. The Dover's powder, also, when the stomach is not irritable, may sometimes be employed advantageously.

Discharges of urine, as just remarked, are also often critical in this disease, and which proclivity should be promoted. The dulcified spirits of nitre is well suited to the occasion, and I have witnessed, in some instances, great utility from a union of the tincture of colchicum with it. But on the whole, perhaps, I have seen the most signal advantage from an infusion of digitalis, sometimes alone, and on other occasions in combination with the preceding articles. Like colchicum, however, there is a property in digitalis displayed in gout of a salutary tendency, independently of any of its ordinary sensible effects. The urinary and perspiratory processes are productive of nearly the same effect in the cure of many diseases, and the one or the other should be encouraged as nature seems to indicate.

Completing, as I have now done, the regular treatment of gout, I must next say a word or two of a nostrum, of too much repute in this disease to be overlooked. To the *eau medicinale* I allude, an article originally invented in France, which, at one time, had acquired immense celebrity throughout Europe. It also crept partially into use in this country, and I have had several opportunities of witnessing its astonishing powers in different shapes of arthritic affections. Of its composition we have ascertained nothing with certainty,—though there are various conjectures on the subject, the most probable of which is, that it is essentially colchicum. Distinctly marked are its effects on the system. As a purgative it operates actively, and sometimes vomits violently, producing, at the same time, copious perspiration or diuresis, with extreme nervous distress and prostration of muscular power. During the operation, however, the pain and swelling of the joint so rapidly subside, that it is not unusual for the person to be perfectly relieved.

This medicine is very differently appreciated by practitioners: while, by many, it is most highly extolled, there are others who condemn it as both useless and pernicious. By some of those who admit its immediate utility, it is, however, dreaded lest it might eventually injure the constitution. Examples are cited

by Ring, Powell, Gregory, and other respectable authorities, of its suddenly extinguishing life by causing apoplexy. But such were rather coincidences than effects, I am inclined to believe, as well from what I have seen myself, as that we are possessed of the most abundant evidence of the older writers of the safety of the *hermodactylus*, the colchicum itself, or a very active species of it. Colchicum surely cannot be deemed dangerous if not abused,—and when displaying any baneful effects, they are rather on the primæ viæ, or skin and nerves, than on the brain. Nausea, vomiting, purging, sweating, with nervous distress, &c., take place, and never, so far as I have observed, any cerebral affection of the kind alleged. From the use of the eau medicinale I was first restrained by the enormous price of the article, and afterwards abandoned it by having found a very efficient substitute for it in the tincture of colchicum, administered in the same manner.

Of the latter having the powers ascribed to it, the medical men of ancient times were so confidently persuaded that the title of *animu articulorum*, the soul of the joints, was conferred on it, and, as lending additional confirmation of this view, it may not be uninteresting to mention that I have seen some instances of the most agonizing neuralgia, particularly of the spine and head, an affection in some respects not dissimilar to gout, the same prompt relief from it. But though large doses are required of these articles to command their full effects in the height of the disease, they may be given much more moderately in cases originally mild, or subdued by previous remedies, say twenty drops of either twice or thrice a day, and which is one of the most common and not the least useful applications of colchicum.

Of the thousand other nostrums which, at different periods, have been proclaimed, and for a season secured more or less attention, the only ones that at present maintain any repute are *Wilson's tincture* and *Reynold's specific*, each probably being composed of colchicum and some opiate preparation. Neither have I ever employed. *Lartigues' pills*, so called after a distinguished apothecary of Paris, by whom they were contrived, and the annexed formula,* liberally promulgated, have recently ac-

* R. Extract. colocynth. comp., gr. iv.; Rad. colch., gr. i.; Fol. digital., gr. ss.; Mucil. gum. Arab., qt. s. ft. pill, i. Two of these pills to be taken morning and night.

quired, and I suspect, deservedly, considerable reputation in this city. It will be perceived that they contain colchicum and digitalis, two articles of which I have already spoken highly; and an active purgative, thus from their properties well calculated to do good, according to my views of the pathology and treatment of the disease. But whatever may be the merits of this or any other single prescription, it can only be useful by a proper adaptation to certain stages or conditions of gout, and employed to the neglect of that general management of the disease which I have so fully pointed out, must prove, as all catholicons have hitherto done, the curse of scientific and successful practice,—the promoter of quackery and the agent of death!

These are the general remedies in regular gout, and which, for the most part, correspondently relieve the local affection. Yet sometimes the agony of the latter is so intense, that the vehement calls for additional succour can scarcely be resisted, and I shall proceed to notice the best palliatives.

Much might be expected from opiates, under such circumstances. In the height of the paroxysm, however, it seems now to be sufficiently ascertained, that they have a tendency to aggravate it, by inducing constipation, and increasing the fever, and restlessness. But a course very different was recommended by Brown, and pursued by himself and his disciples. Deeming gout to be always connected with an asthenic state, he maintained that it should be treated by stimulants, and, among these, that none was more efficacious than opium.

That this is mere theory, refuted by ample experience, I need not say. Brown was destined to illustrate, in his own instance, the pernicious nature of his practice. To a large dose of opium, taken in a paroxysm of podagra, that brought on apoplexy, it is said his death was owing.

Nevertheless, the force of action being abated by proper evacuations, we may then direct opiates with advantage, and especially with a diaphoretic, as in Dover's powder. To this limitation of opiates, there is an exception. Cases sometimes occur, where, even in the early stage, the pain seems to proceed more from extreme nervous irritation than proper arthritic inflammation, in which the circulation, though accelerated, is not full or disturbed by the febrile movement that is benefited by it.

Leeches afford the most prompt relief to the local affection,

when intensely inflamed, and, in contradiction to some writers, may be freely and unhesitatingly employed. These not being to be procured, or, after the trial of them, ineffectual, fomentations are to be directed, made of poppy heads, or the hop, or chamomile, or elder flowers.

As somewhat analogous, I may also mention the application of a piece of raw fresh meat, a beef-steak, particularly. Ludicrous as this very homely means may seem, I have really known it to prove an excellent lenitive. It should be renewed whenever it becomes dry. This, I presume, is a relic of an old custom of soothing wounds and other injuries by putting to them portions of recently killed animals, while still warm, or what, perhaps, was oftener prescribed, a pigeon split open. The practice, indeed, in a modified shape, appears to have been continued to our times. Baron Larrey, at least, I am told, was in the habit of enveloping the whole person in the fresh skin of a calf, as a cure for the muscular rigidity caused by cold, as well as a preventive of traumatic tetanus. But to return to our subject. By steaming the inflamed joint, relief is sometimes speedily obtained, and a very convenient machine for the purpose is now used.

Covering the part with flannel, or cotton, or wool, over which a piece of medicated oil silk is to be bound, operates, to a certain extent, in the same way, and, while it assuages suffering, is well calculated to obviate the retrocession of the disease. By Scudamore, a mixture is strongly recommended, consisting of three parts of camphorated spirit and one of alcohol, applied warm, from which, however, I have seen no benefit.

Blistering has been proposed, and since it is so useful in the other phlegmasiae, with great plausibility of its efficacy. By Stedman, a writer of good repute, in a treatise on the disease in which he adopts as a motto "*dolor est medecinæ doloris*," it is, indeed, affirmed that it never fails to do good. Yet, it is at present very generally abandoned, and by some, from an apprehension of its tendency to repel the disease internally. We know, however, that sinapisms and blisters are the best means to invite and fasten it down on the extremities, and I can have no idea of the same remedy producing such opposite effects. My own experience with blisters, in their appropriation to this painful affection, is too limited to decide confidently on the matter. But,

from analogy, as well on account of what I have seen of their operation, I presume that after a partial reduction of the phlogosis, they would be serviceable—which opinion is strengthened by the consideration, that counter-irritation, by some means, seems always to have been a favourite practice in such cases. Burning the part with flax is the suggestion of Hippocrates—with moxa, is adopted among the Chinese—and urtication in some of the countries of Europe. Deeming counter-irritation of importance, the common episastic I should prefer. The catalogue of topical applications, professional and popular, which have been employed in the disease is boundless in number and variety. An idea may be formed of the extent of such means even in early times, and they have since been greatly multiplied, from the ensuing often-quoted passage from Lucian.

“Terunt plantagines, et apia
 Et folia lactucarum et sylvestrem portulacam.
 Alii marrubium ; alii potamogeitonem ;
 Alii urticas terunt; alii symphytum ;
 Alii lentes adferunt ex palustribas lectas ;
 Alii pastinacam coctam ; alii folia persicorum ,
 Hyoscyamum, papaver, cepas agrestes, mali punici cortices ,
 Psyllium, thus, radicem ellebori, nitrum ,
 Fœnum græcum cum vino, gyrinum, collamphacum ,
 Cyparissinam gallam, polleni hordeaceum ,
 Brassicæ decoctæ folia, gypsum ex garo ,
 Stercora montanæ capræ, humanum oletum ,
 Farinas fabarum, florem asii lapidis :
 Coquunt rubetas, mares-araneos, lacertas, feles ,
 Ranas, hyænas, tragelaphos, vulpeculas .
 Quale metallum non exploratum est mortalibus ?
 Quis non succus ? Qualis non arborum lacryma ?
 Animalium quorumvis ossa, nervi, pelles ,
 Adeps, sanguis, medulla, stercus, lac .
 Bibunt alii numero quaterno pharmacum :
 Alii octono ; sed septeno plures .
 Alius vero bibens hieram purgatur :
 Alius incantamentis impostorum deluditur,” &c.

Every measure of a stimulating or heating character, however, is condemned by some practitioners, and particularly by Kinlake, a respectable writer on gout, who maintains that, instead of augmenting the temperature or excitement of the part, already too high, by such applications, we should do directly the reverse. His theory of the disease is as fallacious as the practice deduced

from it proves hazardous. Contemplating the local affection as primary, and the general disturbance of the system to be of a secondary and sympathetic nature it is inferred that, by curing the first, the other of course must subside.

That the application of cold to the part will mitigate the phlogosis, has been shown, from the time of Hippocrates, with whom the practice originated, to the present day. Yet that it is a perilous expedient, by repelling the disease, is equally clear, and is now discarded by discreet practitioners. The only case in which it is admissible at all, is where the individual is of sound and vigorous constitution, of which the illustrious discoverer of the circulation, by whom the practice was tried, in regard to himself, ultimately became convinced. Early in life, when robust, he resorted to it safely and usefully. But, as soon as the feebleness of age began to approach, he was admonished to desist, from the injury he received. The same was experienced, I recollect, by the great financier of our Revolution, the late Robert Morris. Like Harvey, he was long in the habit, he told me, of immersing his feet in cold water, deriving immediate relief from it, till, deterred from its further use, by having, on one occasion, a sudden and nearly fatal translation of the disease to the brain. Three cases are mentioned by Parry where paralysis speedily followed from it, and I have no doubt that others might be collected of this or some other disastrous consequence.

Even under the most propitious circumstances, it will be prudent to fortify the stomach by the previous exhibition of some cordial or stimulant, as, a dose of the carbonate of ammonia or camphor, or ether or laudanum.

Cold water, applied as a pediluvium, I should think, in any case, too hazardous to be ventured. Merely sponging the inflamed part is greatly to be preferred. Covering it with cabbage leaves, and still more with those of the tulip poplar, I have known to be productive of ease. They are prepared and operate, however, differently, the one being welted by heat, and used as a fomentation, and the other in the natural state, lowering temperature by occasioning the most copious cold dewy-like exhalation.

The course of treatment, now detailed, has reference mainly to the more violent states of gout. It often, however, assumes a mitigated shape, or appears in the aged or otherwise infirm, and here the measures are to be tempered accordingly.

On the subsidence of the paroxysm, little is commonly required to be done, where the integrity of the constitution is preserved. Moderately nutritious diet, with a glass or two daily of pure Madeira or Sherry wine, and some attention to the bowels, are all that is usually exacted to secure a perfect convalescence. The joints, however, may continue swollen and stiff, to remove which, frictions, with a stimulating liniment, and a flannel roller, when an œdematos state exists, are the most effectual.

CHRONIC GOUT.

In the inveterate states of gout, not much can be done towards a cure, and, for the most part, our efforts are limited merely to a palliation of urgent affections. The remedies here are nearly the same as in the acute disease, though none of them can be urged to any extent. As the management, on the whole, is very similar to that of some of the forms of atonic gout, I shall postpone the details of it till I arrive at the consideration of that division of the subject. In many instances, the animal machine becomes so broken and out of order, by the ravages of the disease, that no skill can repair it. But, less injured, some encouragement is afforded, and endeavours should be made toward its rectification. As preliminary to any such attempts, the entire economy is carefully to be surveyed, with a view to the detection of the principal lesions. Nearly always, it will be found, that the abdominal viscera are materially in fault, the stomach, bowels and liver especially. Great advantages are sometimes derived, in such cases, from the cautious use of the blue pill and the taraxicum mixture, to be followed, ultimately, by a course of the mildest preparations of steel, and a properly regulated regimen. As pains, nervous inquietude, and the want of sleep, are pretty uniform attendants on this condition, worrying and exhausting, these must be mitigated by lenitives, among the best of which is henbane, or an opiate in combination with a gentle diaphoretic, at night. Confidence is, however, reposed by some, at this conjuncture, in the compound syrup of sarsaparilla, volatile tincture of guaiacum, the terebinthines, the savin, and similar articles. But, so far as I have seen, these are very equivocal remedies, and ordinarily prove so offensive to the stomach, that they are at

once rejected, or cannot be continued to any efficient end. The savin, however, when tolerated for a considerable length of time, I have known, in several instances, to remove the extraneous matter in the joints, and thereby to restore freedom in their movements. This is the most useful property of the article, in its application to gout. But, in relation to the articular derangements, I prefer treating of them fully under the head of chronic rheumatism, in which they more frequently occur. I have now only to add, that, whenever practicable, individuals with chronic gout should make a fair trial of the Thermal and other Springs of Virginia, which often do more than all other means.

RETROCEDENT, RETROGRADE, OR DISPLACED GOUT.

Gout, though apparently fixed in one of the extremities, is prone to shift its position, and seize on some internal or vital part, creating, sometimes, the most imminent danger. This is the form of it which receives the above titles.

It may locate itself in any one of the organs of the great cavities, though, most commonly, in the stomach, causing nausea, vomiting, and violent spasms, which, if not expeditiously relieved, will often prove fatal. Gastric affections of this nature require a very opposite mode of treatment, in their several stages. It is usual to commence with the diffusible stimulants and antispasmodics, such as opium, ether, musk, carbonate of ammonia, the spirit of turpentine, spiced wine or ardent spirits, either pure or converted into hot toddy. The stomach here loses its susceptibility, in a very considerable degree, and hence, in prescribing any of the articles mentioned, the dose must be very much increased. This remark applies, perhaps, with peculiar force to opium and its preparations, which, in some instances, may be given in three or four, or five times the ordinary quantity. As co-operating means, hot fomentations to the epigastric region are not to be overlooked in the more vehement of these attacks. They contribute to mitigate pain, and sometimes so far tranquillize the stomach as to check the puking, and thus prepare the way for the exhibition of medicines.

This is the customary mode of managing the early stage of *retrocedent gout* in the stomach. Not succeeding, it will be

proper to take away some blood. Leeches or cups over the epigastrium prove very effectual. Cases, however, occur of such urgency, as not to admit of so slow a process, and venesection must be substituted. Yet, as regards the latter, care and discrimination are to be exercised. The pulse here scarcely can be trusted as a guide, being frequently weak, or depressed in the more violent attacks, and when, perhaps, the loss of blood is imperatively demanded. In making up our decision on this point, we should take into view the strength of the patient, *the intensity of the pain*, the state of temperature on the surface, and, in fine, the degree of probability, as to the power of the system to react on depletion. It is well to bear in mind that, mostly, where there is apparently depression of the vital forces, suddenly induced, the existence of acute pain is a pretty certain sign of the propriety of such practice.

Notwithstanding all the monitory suggestions against it, in many of the European writers, bleeding, and very copious bleeding, too, is habitually directed by me, and other practitioners of this city in gout of the stomach, and with great success. It is the best and most certain antispasmodic, and if inflammation exists, holds out the only chance of cure.

These are cases to be managed essentially in the same manner as common colic. Being spasmodic in the beginning, whatever is calculated to resolve the spasm will be useful. But phlogosis having taken place, and which sometimes happens even at an early stage, all stimulating articles are to be abandoned, and measures of a directly opposite tendency resorted to, as general and topical bleeding, a blister to the epigastrium, and opiates.

Nearly a similar course should be adopted, when it attacks the bowels, which it is almost as apt to do by violent cramps and obstinate constipation.

The kidneys are also very liable to be assailed, and with the symptoms of ordinary nephritis, which sometimes may be relieved by fomentations or the warm bath. But when obstinate, general or topical bleeding, a blister over the affected part, and an opiate, —the latter answering best as an enema, are required. Lingering cases, I have found singularly benefited by the use of colchicum. Equally is this treatment suited to an attack of the urinary bladder and of the uterus, which is usually betrayed by severe spasmodic pain.

Translated to the lungs, gout produces a state sometimes imitative of pneumonic or pleuritic inflammation ;—and, in other instances, of bronchitis or of asthma. The treatment in each instance is very much the same as if the attacks had proceeded from the vicissitudes of weather, or any other of the ordinary causes of such complaints.

Cardiac affections from the same cause are characterized by violent spasms of the heart, or by inflammation of it, or a state resembling syncope, or by an immediate extinction of life, from suppression of the circulation.

As may be supposed, this affection is calculated always, whether it be violent or not, to create great solicitude and apprehension. Without, indeed, the attack be slight, we are often precluded altogether even from the hope of doing good, by the suddenness of death. Two of the cases which I have met with, terminated almost immediately. Time, however, being allowed to interpose our efforts, venesection, and then topical bleeding and blistering with an opiate, constitute the proper means, to be followed up by the use of colchicum or digitalis.

Much of the preceding treatment is equally applicable to gout, when it seizes on the brain, in which position it is chiefly betrayed by violent cerebral excitement, with delirium, or by apoplexy, palsy, stupor or lethargy. Conforming the practice to the state of the system, we should bleed generally or locally, or both, vesicate the nape of the neck, purge copiously, and do whatever else is called for in these states otherwise induced.

In relation to retrocedent gout, there is one precept of universal application, which, in practice, must be kept in mind. It is *steadily* to endeavour to invite or restore the disease to the joints, and, with this view, a resort is to be had to a stimulating pediluvium, and next to sinapisms or blisters to the lower extremities, as the most effectual measures.

ATONIC, IRREGULAR OR MISPLACED GOUT.

In the ordinary acceptation of the former of these terms, is meant that state of the disease where, though the arthritic diathesis prevails, there is not vigour enough to induce the inflammatory affection of the limbs, or, if it take place, it is slight or transitory,

continuing only for a very short time, and then reverting to some inward structure.

Commonly, the individual is persecuted by a group of affections, which appears chiefly in the stomach, such as loss of appetite, nausea, vomiting, acrid and sour eructations, cardialgia, pyrosis, &c. These, with pains and cramps, like those of flatulent colic, are sometimes relieved by a discharge of wind. Constipation usually predominates, though alternated by purging, which may be attended by tormina and tenesmus. The urine, as well as the other secretions, is scanty and vitiated, the tongue foul,—the skin very dry—the breath heavy and offensive, and great depression of spirits, amounting to melancholy, often prevails with a constant and anxious attention to the slightest feelings, much aggravated by disturbed imaginations and idle fears, to which may be added, palpitations of the heart, or angina pectoris, or asthma, or headache, vertigo, &c. &c. Fever can scarcely be said to exist, though the pulse may be quickened and irritated.

Considering the articulations as the proper seat of the disease, when it primarily appears in any other part, it receives the title of *misplaced gout*. Disposed to wander about the system, as it is very apt to do, then it is denominated erratic gout, and some instances of it are remarkably distinguished by the suddenness and capriciousness of its fluctuations. Generally incident to an atonic state of the system, we, however, sometimes meet with this variety of it, most decidedly otherwise, or actively inflammatory. *Misplaced gout*, of the latter description, may occupy any position, the head, the heart, the lungs, or any one or more of the abdominal viscera. Frequently, too, it attacks the testicles, and I knew an elderly man, who had it repeatedly in the penis, causing very painful priapisms. The skin is, moreover, sometimes assailed by it, manifested by an irritation, resembling prurigo formicans, or by some eruption, particularly on the perineum or about the anus or vagina. No part of the body has, in short, an immunity from its attacks, which present every diversity of aspect, simulating all other diseases. Thus occurring, it sometimes bears a very close resemblance to retrocedent gout in the same positions.

The causes of these two varieties of the disease are the same as of regular gout. Men of originally delicate constitutions, or

rendered so by depraved indulgences, or in any way, are mainly exposed to such aggressions. Even still more, perhaps, are women, especially after the cessation of the menses, under the guise of some one of those numerous and anomalous affections which they are apt to exhibit at that period.

To discriminate between the real gouty and other conditions, which, though apparently similar, are essentially different, is often a matter of considerable perplexity. Chief reliance must be placed, under circumstances of such embarrassment, on an inquiry into the history of the individual, whether there is reason to suspect an hereditary taint, or from certain habits, it may have been acquired, on a careful comparison of the symptoms themselves, and particularly, on the proneness to metastasis.

Generally, irregular gout is exceedingly troublesome in the management, owing to its disguises, fluctuations and proteiform shapes. Concentrated, and fixed in a part, as a phlegmasia, it is least so, though immediately more alarming. But oftener otherwise, it preys upon the constitution, involving organ after organ, till ultimately a general cachexy is induced. The result, on the whole, will depend materially on the condition of the individual, the integrity of his economy, the simplicity or complication of the case, its duration, the organ or organs affected, and the kind and degree of lesion or lesions.

Of the anatomical characters, little seems to be accurately known. We have, however, evidence, though not definitely given, of the existence of spasm and inflammation, acute and chronic, with every sort of disorganization, as the case may have been. Yet the disease sometimes long endures, and with considerable severity, without leaving behind any appreciable signs.

In approaching the pathological consideration, the question which I am first to advert to is, whether these internal affections are really gouty, or of a distinct character, superinduced on that peculiar diathesis. Each view may possibly be correct, or, at least, that a totally different affection shall sometimes become thus engrafted. Nevertheless, I think the susceptibility of the internal structures to gout cannot be doubted on solid grounds, nor that a very large proportion of such instances are of this nature. Believing, indeed, that both propositions are sufficiently established, I shall dismiss them without further inquiry.

Between misplaced and atonic gout, I take the only, or at all

events, the chief difference to consist in the former being more fully developed and inflammatory, though *in error loci*, while the latter is a feeble, ill-defined and rather an irritative state of the same affection. Even this distinction must be received with limitations.

Concerning the treatment of misplaced gout, I have to observe, that we are to be governed by the same principles, and to resort to the remedies which were detailed in delivering the history of the retrocedent variety of the disease. Let it be here recollected as a guide to practice, that instead of an inflammatory attack in an extremity, some internal organ is suffering in a similar manner, and requires to be managed accordingly.

In regard to the atonic states of the disease, though the general characteristics may be that of debility and depravation of system, in which there is more of an irritative than inflammatory condition, I think it is often otherwise, or that some lurking phlegmasia exists, disguised by the pervading weakness. It is, at least, very important in the treatment, to advert to the possibility of the fact, and to endeavour its determination. Not unfrequently will a very careful examination reveal chronic gastro-enteritis alone, or united with functional or other lesions of the liver or kidneys especially, where none was suspected or prominently displayed.

Can tonics, or cordial stimulants, the customary remedies employed, avail, or rather, would they not be the most inapt or mischievous which could be selected? Common sense, indeed, dictates an opposite course, or the entire removal of these pathological states prior to an appeal to such means. This design having been accomplished and the restoration of tone seemingly demanded, or in a case originally with this defect only, then may the plan of invigoration be properly entered upon, and with some rational expectation of advantage. But it still more frequently happens that the chylopoietic organs without phlogosis are functionally disordered, showing great derangement in the digestive and nutritive apparatus, resembling ordinary dyspepsia with its sympathetic disturbances. These several conditions, however, having been amply discussed and disposed of under the head of the gastric diseases, I shall be content to refer to what was said on that occasion for the details of the course as being applicable to the cases now before us. It may, indeed, be enough now to remark, that on the rectification of the organs

concerned by the means formerly mentioned, little else remains to be done in atonic gout by medicine than to obviate constipation by magnesia, rhubarb or sulphur, occasionally directed, and the use of tonics. Of the latter, the chalybeates alone, or with bark, are much commended. Crude bark, however, I have found to disagree with the stomach, the aromatic decoction or infusion sometimes to answer, and still oftener the tincture, united with one of the martial preparations, though, perhaps, the sulphate of quinine is to be preferred, and certainly as an adjunct to the steel.

Yet there is a writer who winds up an eulogium on the properties of the bark itself, with the following enthusiastic expression:

“*Uno verbo, cortex Peruvianus, in podagra divinum est remedium.*”

Nearly all of the best authorities, however, seem to unite in denouncing the protracted use of bitters. By invigorating the stomach, they are for a time undoubtedly beneficial,—though a persistence in them, it is alleged, is apt to produce the most pernicious consequences. The power of the system to throw the disease on the extremities is greatly impaired, and the individual rendered miserable by all the irregular arthritic affections, or he is suddenly destroyed by apoplexy, or has entailed on him palsy, asthma, dropsy, &c., which ultimately prove fatal.

Of the *Portland* powder every one has heard. This, so called from the Duke of Portland, who gave it celebrity, is composed of several of the vegetable bitters, no one of which has much activity.* Yet it is declared by Cullen, by Murray, the author of the *Apparatus Medicaminum*, by Darwin, and, in short, by many of our authorities, that this nostrum has proved most hurtful in the mode I have just mentioned. Exactly the same is said by Galen and other of the old writers of nearly a similar compound, which was in vogue in their time. Bitters long continued, operate here by inducing debility of stomach from over stimulation.

To relieve at the moment, as well as to prevent a recurrence

* It is composed of the roots of the gentian, and birthwort, and of the tops and leaves of centaury, ground pine, and germander of equal weight, well dried and pulverized, of which a drachm is to be taken every morning fasting, for months, then omitted for a time and renewed in less quantity.

of some of the more harassing affections incident to the disease, as spasms of the alimentary canal, flatulence, palpitations, &c., I have found the volatile tincture of guaiacum, or, the carbonate of ammonia, by itself, very serviceable. The Warner's gout cordial which is an aromatic, carminative tincture of senna and rhubarb, is also deserving of attention. These articles are further calculated to throw the disease on the extremities, an indication never to be lost sight of, or failed to be promoted. By such a translation, when perfect, immediate relief is afforded, however great the previous distress may have been, provided no essential structural lesions have taken place. Directed by this view, a small wineglassful of Warner's cordial, especially, should be taken at night, with a copious draught of hot wine whey, a stimulating pediluvium having been previously used. More active revulsives, as sinapisms or blisters, may also be tried, and I have known, in two instances, the wearing of tight boots to prove effectual.

Not less important than medicines, is a duly regulated regimen, concerning which, however, I have little to add to what was said on this point in regard to the stomach affections. It differs chiefly in the food, requiring, in some instances, to be more stimulating, and in a freer use of wine.

The gout having been allured to a joint, it will hardly be prudent to attempt any means to lessen the pain or inflammation;—but, on the contrary, our aim should be so to establish it as to let it pass through all the stages regularly, without the least molestation. This is a case which may be properly committed “to flannel and patient endurance,” with the exception, that should it show a disposition to recede, such an event must be obviated by pretty much the same means employed to bring it to the extremity. We may, however, be compelled to direct wine itself, and more liberally—and also to resort to opiates, or the carbonate of ammonia, or musk, which last article, though less prescribed, is, when of good quality, one of the most efficient remedies with which I am conversant.

Closing this part of my subject, I cannot forbear again to urge the value of our mineral and thermal springs, in their relations to every modification of gout. Those of Europe, of a similar kind, have immemorially had an indisputable reputation in this respect, and to which I have reason to believe our own are still

more entitled, from greater efficacy. The waters of Bedford in this state, of Saratoga, in New York, and of the White Sulphur Springs, in Virginia, are eminently calculated to repair the derangement of the primæ viæ, the liver and kidneys, incident to the disease, and the warm and hot baths in the same neighbourhood as the last, are not less so, to re-establish a healthy condition of the skin, very frequently dry and harsh, with a feeble capillary circulation,—to invigorate the nervous system, nearly always out of order, and, above all, perhaps, are they serviceable in the cure of muscular weakness of the lower limbs, and the chronic swellings, rigidities and other injuries of the articulations. The first is to be preferred in reference to the general affections named, and the second, to relieve the topical lesions, especially when applied as douches, followed by frictions and *champooing*. Nothing need be said of the influence of the long journey to reach these springs, or of the delicious climate of the locality, or of the charms of the society by which they are distinguished.

Though the complete eradication of gout, in any of its forms, when fully established, is perhaps hardly to be expected, still, by care in the avoidance of the exciting causes, the interval between the paroxysms may be procrastinated,—and when they occur, greatly abated. Cullen's directions on this point are so sound, that I cannot forbear to recommend them to general perusal, and most particular regard.

As indispensable, let me insist on a strict, undeviating adherence to a moderate diet. Medical authority, however, differs as to the kind of food. By Redi, Starke, Lobb, &c., the exclusive use of vegetables is strenuously advised, while Brown and his disciples as strongly urge the reverse. Both are wrong. The lowest and most abstemious diet will sometimes be exacted, and on other occasions, the cordial and generous. Limitation in quantity is, perhaps, of as much consequence as the quality of the nutriment. Discrimination is no less to be made in relation to drinks. To some, water alone should be allowed, and others will require a small portion of wine, or of ardent spirits. The great purpose is to preserve soundness of the digestive and assimilative functions, and the course of living must be accommodated accordingly.

Equally important is it, that habits of indolence, or even of too intense application to study, or any other sedentary occupation,

be exchanged for those of activity and exercise. Many, says Hoffman, "have lost their gout with their fortune," by turning, no doubt, at the same time, from luxury and lazy enjoyments to laborious pursuits. The eccentric Mr. Abernethy being asked by a nobleman, what would prevent gout, he replied, in his usual sententious manner: "My lord, live on sixpence a-day, and earn it." These are aphorisms, which, though uttered with some exaggeration, contain a vast deal of wisdom, and might be adopted, with proper qualifications, as rules of life, in reference to the object in view.

By one of the sages of our profession, gout has been pronounced as proceeding mainly from "vexation of spirit." Not agreeing entirely with him, the immense influence of moral causes in the origination and maintenance of the disease, seems to be universally admitted. Every emotion or passion, whether of tempestuous excitement, or the reverse, depressive, or worrying and irritative, has such an effect. Equanimity is hence to be cultivated, and which will be most successfully done, by resorting to those sentinels which philosophy places over us, to protect against the invasions of the evil dispositions by which the soul becomes agitated or disturbed. Nourished by unresistance, a fretted or exasperated temper is held to be especially baneful, and hence, above all, the injunction of the wisest of mortals should be remembered: "Let not the sun go down on thy wrath."

Yet, admonished as they may be, we shall find our patients, for the most part, reckless of advice, and our preachings, like those of the divine or moralist, too often leave only an evanescent impression. The victims of gout are, also, usually the votaries of sensual gratifications. By the ancients, who, under the shadow of an allegory, often conveyed a truth, the disease was held to be the progeny of the divinities of love and debauchery. To such persons as I have alluded to, we shall in vain hold the language of remonstrance, or deliver injunctions to reformation, when opposed by the attractions of the festive board, the seductions of luxurious ease and the other fascinations and enjoyments of sense and appetite. Ease, in such cases, retracts the vows made in pain, and exclaims, with the voluptuous poet of antiquity, "*Vitam faciunt balnea vina Venus.*" To such individuals existence has no other charms. "Dum vivimus, vivamus," is

their motto, to live while we live in every animal and gross enjoyment. Differently and more justly, however, has this most pernicious maxim, which, in the wantonness of folly has, and continues to produce inconceivable mischief, been rendered by a pious divine:

“‘Live while we live,’ the Epicure would say,
‘And seize the pleasure of the present day;’
‘Live while we live,’ the sacred preacher cries,
‘And give to God each moment as it flies.’
Lord in our views let both united be,
We live *in pleasure*, when we live in thee!”

It remains only to add, that in gout, the paroxysm may be sometimes warded off, if, on the first signs of its approach, a purge be taken. The same good effect I have also known from repeated doses of alkalies or magnesia, the prepared oyster-shell, or other antacids, and also by the use of colchicum.

I have already referred to the denunciation of the latter article under any circumstances, and more especially to any thing like an habitual employment of it. But these apprehensions, I must think, are unfounded, and certainly to the extent to which they have been expressed by some of the European writers. Much as I have prescribed it, never have I known any pernicious effects from it, and, I believe, that it may be always so regulated as to prove a perfectly safe remedy. There are, within the compass of my own experience, several individuals who were formerly harassed by floating gout, or frequently repeated regular attacks of it, from which their constitutions suffered materially, that have obviated the paroxysms and greatly improved in health, by a pretty constant resort to this medicine, even for a term of years. It is generally taken in the small dose of ten or twenty drops daily, morning and evening, when any slight indications of gout exist, increasing the quantity considerably on a stronger manifestation of an attack.

In recurring to the whole of what has been delivered, it will be perceived that I have suggested little very peculiar in the management of gout. Too long, indeed, have we been accustomed to view it with a sort of superstitious awe. We have been afraid to touch it. Ever since the time of Sydenham, with some few exceptions, the approach of practitioners to this disease has been singularly marked by timidity, and encumbered with doubt and

irresolution. The first step towards a correct investigation of its pathology, and, of course, a more successful practice, is to discard such apprehensions and to contemplate it pretty much as ordinary disease, to be cured, for the most part, by common remedies.

RHEUMATISMUS, OR RHEUMATISM.

It was remarked, on a preceding occasion, that the term arthritis embraced, originally, every inflammation of the joints, however differing in their causes or nature. But in the process of time, it came to be restricted to gout, exclusively, and that of rheumatismus or rheumatism was invented to designate another affection, having an analogy to, though not believed to be identical with it, which is now presented for consideration. Exactly the same objection applies to this term as to that of gout, each proceeding from a crude and erroneous pathological view. The derivation of the former has been given, and the latter comes from *rheuma*, a peculiar sort of humour, which, as was thought, being distilled into the joints, irritated them into inflammation. Exposed to the "peltings of the pitiless storm," old Lear, among other infirmities, is made to complain of "joint-racking rheums." The credit of separating the two diseases, as specifically different, has been generally accorded to Sydenham, though without justice. Expressive of a morbid state of action, contradistinguished from that of arthritis, the term rheumatismus first occurs in Ballonius's treatise, "De Rheumatismo, et Pleuridite Dorsali," printed in 1642.

Like gout, this disease exhibits great variety of aspects. The common nosological division of it is into acute and chronic, these being its leading and conspicuous states: and from its appearing, either in the joints or muscles, it has lately been subdivided into articular and muscular. Not embracing, however, the whole of the fibrous tissue, the term articular is defective. The disease, too, attacks the interior as well as the exterior of the body, no one of the contents of the great cavities, indeed, escaping. An adequate exposition of the disease, therefore, requires it to be presented in all these views, and each designated by some appropriate title. By far a better arrangement than any hitherto sug-

gested, would be into fibrous and muscular rheumatism, each of which species to be considered in its acute, subacute and chronic states, it being easy to bring under these heads every modification of the disease.

Of the varieties of rheumatism, the articulo-fibrous is the most common, and its principal seats are the large joints, one or more simultaneously affected, the shoulder, elbow, wrist, the knee and ankle, the fingers and toes being rarely implicated, though I have met with such instances.

By an accurate observer, we are told that, of an hundred and seventy cases of the disease, which he had noticed, only nine were exclusively muscular, and in thirty-three more, the muscles were engaged with the joints.*

An attack of acute inflammatory rheumatism may come on very suddenly, or more slowly, with a general soreness or rigidity, or directly by a chill, followed by the usual symptoms of fever, a very full, strong, round, or bounding pulse, hot skin, dry fauces, slightly furred tongue, and considerable thirst. The local affection, in some instances, anticipates the fever, and, perhaps, most commonly, such is the course of the disease. It may then be remarked, that the pain is steadily fixed at one point—whereas, when it is preceded by fever, it is fluctuating, attacking at once several joints, or changing very rapidly from place to place. The stomach is little troubled, the bowels are constipated, the urine scanty and very high-coloured, and without any sediment,—which, however, in the progress of the case, deposits lateritious matter, sometimes proving critical and salutary. The tongue ultimately becomes loaded with a thick, brown, tenacious mucus. Generally, with a tense skin, spontaneous clammy perspiration occurs, never from the part affected, however, having a peculiar acid odour, which, copious as it may be, does not mitigate the paroxysm, or in any way conduce to recovery. The fever is remittent. There is, for the most part, considerable alleviation during the day, with an exacerbation in the evening, attended, in some instances, by a vast increase of suffering, and especially if the patient be covered warmly in bed. This, which is the ordinary character of the disease, is sometimes considerably modified. Contracted in a miasmatic region, the influence of

* Haygarth's Clinical History of Rheumatism.

such a position is very discernible. The stomach here is greatly disordered, and copious vomitings of bile are common, the skin and eyes sallow, the tongue early coated with yellowish or brownish fur, the head aches, or is otherwise affected, and the fever is usually of the intermittent type.

In either case, the articular affection is pretty nearly the same, though perhaps less in the latter variety of the disease. The joint is red, tender and very painful, particularly on motion, and ultimately becomes swollen and œdematosus, by which very sensible relief is afforded.

Every other portion of the fibrous membrane, however, may be the seat of an attack, even to the sclerotica of the eye, though it chiefly and most prominently occurs in the periosteum, locally, or more generally diffused. The sensation is that of a dull ache, or an acute, pungent, or darting pain, and, from its depth, is referred to the bone. It very often, too, is to be met with in the pericranium, especially on one side of the head, constituting hemicrania, and occasionally in the neurilema or fibrous integument of the large nerves—the sciatic mostly, where it is recognized by singularly sharp pain, pursuing the course of the nerve.

Much of the preceding account is equally applicable to myositis or muscular rheumatism. It is, however, more apt to come on suddenly, or without any very significant premonition. Lumbago, especially, I have known to strike, as it were, like an electric shock. Three very remarkable cases of the kind were witnessed by me—the first, in drawing on a boot—the second, from an attempt to mount a horse—the third, from stepping into a carriage,—each individual supposing, at the moment, that his back had been broken by a blow from behind.

Muscular rheumatism is mostly distinguished by a burning sensation, often severely painful, greatly exasperated by the action of the muscle, with sometimes redness of the integuments. The muscles, in any part of the body, may be the seat of it, though those of the back of the neck, of the sides of the thorax, particularly the intercostals,—of the lumbar region and hip, are mostly liable to it, to which are applied respectively the terms, torticollis, pleurodynia, lumbago and sciatica.

This form of the disease is singularly prone to metastases, either to other muscles, or the joints. But, instead of being confined to one or more muscles, it, on some occasions, displays itself

over a wide surface, seemingly not much deeper than the skin itself, causing a painful degree of heat and soreness. From the supposition of its neuralgic character, the term dermalgia, skin ache, has been applied to it. But though this may be, in some instances, a correct view of its pathology, I am persuaded it is oftener of a genuine rheumatic nature. Caused in the same manner, I have seen it to alternate with the other forms of the disease. There is, indeed, an eminent personage now living in this city, who was for many years scarcely ever exposed to cold, without incurring an attack of it, marked by the fluctuations mentioned.

Another modification of muscular rheumatism claims here to be noticed, though hitherto differently assorted. My allusion is to those cases which so closely resemble tetanus, as to be deemed one of the varieties of that disease. The analogy, in some instances, is nearly complete. Commencing very much in the same way, we have ultimately violent spasms of the muscles, together with most of the other symptoms of that affection. But, though sometimes, this similitude is not uniformly presented. More commonly, perhaps, there is a partial or general rigidity of the external muscles, attended by a cold, collapsed, insensible surface, exceedingly feeble pulse, haggard countenance, and obtuseness of the senses and intellectual faculties. The condition, in a word, is that of torpor, as well of the body as of the mind. But, on reaction taking place, the sensations are very exquisite, and, with universal soreness of the muscles, tremendous spasms occasionally ensue.

Though these several forms of rheumatism, with the exception of the tetanoid, are generally febrile, there are occasionally acute attacks of the disease, attended by much pain, where vascular excitement is scarcely discernible. These are merely local affections in which, the general sympathies being quiescent, of course no constitutional disturbance arises. The reverse, however, happens—or the highest and most ardent fever prevails, independently of any outward or ostensible local affection—or, at all events, it is so trivial as not to account for such violent and extensive effects—and this is what is called rheumatic fever.

It has been usual to consider rheumatism as exclusively a centrifugal disease. True, in the main, it does not universally hold. The viscera, and every other structure, are, occasionally,

liable to such attacks. I have witnessed them in the dura mater, in the diaphragm, in the stomach and bowels, in the kidneys, in the uterus, and we have abundant proofs of its assailing the very fountain of the circulation. The heart is singularly liable to its aggressions, of which I have seen many instances, and still more are recorded. Bouillaud has, indeed, endeavoured to show a pretty constant coincidence between the articular and the cardiac affection, in its several diversities, of the recognition of which he arrogates the merit to himself. Except, however, as to the extent, which, I suspect, is exaggerated, he has no just claim. The fact had been long determined, and taught by me, ever since my occupation of this chair, especially in tracing the etiology of the diseases of the heart, where it is assigned as a leading or principal cause.

Located in any of the internal parts, which it may be primarily, though much more commonly, by translation from the exterior, rheumatism bears so close an affinity to misplaced or retrocedent gout, that it will be enough to refer to what was said on this subject. The metastasis is as sudden as in its kindred affection. On one occasion, I saw the translation in a moment, and without any premonition whatever.

No age, sex or condition, is entirely exempt from rheumatism. But it is mostly to be met with, in the acute form, about the meridian of life, rather in males than females, and especially among the labouring classes, from, perhaps, their greater exposure to its causes—and in the lean or muscular, with a sanguineous temperament, than in the corpulent, nervous or phlegmatic. Even very young children are liable to the disease. Examples of it I have seen so early as within the first year of life, usually in the muscles of the nape of the neck. It seldom occurs in aged persons, these being more subject to the chronic states of it.

As an inheritance, a predisposition to it would seem sometimes to be received. Evidence is, indeed, given of its having been transmitted through successive generations, with great obscurity as to the temperament or condition by which its propagation is promoted. But a strong tendency to it may also exist,—the disease pervading whole families, where the occasion of it is not assignable to this, nor any obvious constitutional peculiarities. As much as to any thing else, perhaps, is a susceptibility to it created by an abuse of mercury, and which is long retained by a

system once deeply affected by that article. Nor is it less determined that a previous attack of the disease has a similar effect.

More immediately, however, does it depend on the sensible qualities of the atmosphere, and hence it is chiefly prevalent in damp, sour, inhospitable or variable climates, and everywhere in the spring and fall, owing to greater and more sudden fluctuations of weather. But, at all times, by an exposure to cold, and particularly with moisture, or sleeping in a damp room, or damp sheets, or wearing damp clothes, or being thinly clad, or sitting in a draft of air, or entering ice-houses or damp cellars, or other such places, an attack may be induced, and some of the worst cases I have ever encountered were thus brought on in the midst of summer. Cold, operating on a previously heated system, is, indeed, so influential in the production of the disease, that the tetanoid variety of it, at least, is almost endemic in the torrid or intertropical climates. The writers of the West and East Indies speak emphatically of its prevalence, caused chiefly by sleeping, subjected to the dews and cool air of the night of those regions. Girdlestone mentions the remarkable fact of several hundred soldiers of a regiment being seized in this way, by lying in the open air, after a long and fatiguing day's march in some portion of India. Examples of the kind I have met with, chiefly among our vagabond paupers picked up at night in the streets or other exposed places, and brought into our former Almshouse.

With an unusual proclivity to rheumatism, an attack of it is readily excited by very slight causes, as a strain or other injury to a joint or muscle, or by indulging freely in high-seasoned food, or stimulating drinks, or by almost any indiscretion—and in all instances, the liability to relapses is lively and enduring.

By Swediaur, Brodie and other writers, rheumatism has been traced to a suppression of the gonorrhœal discharge, or, at least, a connection is attempted to be made between the two affections, the one arising as the other declines. That inflammation of a joint has taken place under such circumstances I am not prepared to deny. But its origination in gonorrhœa, or its identity with rheumatism remains to be proved, and, at all events, on so imperfect a foundation I am not disposed to erect a new species of the disease.

Much as rheumatism sometimes resembles gout, the prominent

distinctions already given, with a careful comparison of the whole history of the two diseases, can scarcely ever fail to lead to a just diagnosis.

The leading divisions of the disease itself, the fibrous and muscular, are too clearly designated to be well confounded. It requires sometimes, however, no little attention to be enabled to discriminate, with precision, the modifications of rheumatism occasioned by its several locations. I have merely to state, that a joint being affected, we shall find some marked difference in the symptoms, as the tendons, ligaments and fasciæ, or the synovial capsule and bursæ may be concerned. The pain, in the former, is acute and lancinating, the swelling slowly arises, and never attains to any height—is florid and exquisitely tender, comparatively seldom involving the surrounding textures. It is very much the reverse in the latter, or the pain is dull and steady, the intumescence quickly takes place, and is circumscribed and elastic, or pulpy, or œdematosus from effusion into the adjacent cellular membrane, to which may be added, that the general constitutional disturbance is far greater in the first than second instance, in proportion to the degree of the local affection. In relation to the other cases there is less difficulty, and they are, perhaps, sufficiently cognizable from what was said in the antecedent sketch of them, and I shall, therefore, decline a further prosecution of the inquiry into their peculiarities.

Certain spinal and neuralgic affections have also a resemblance to some of the rheumatic modifications, and especially to lumbago and sciatica. Not now to go into any details, I have to observe, that whenever the latter exist, the pain is referable to the muscles and restricted to them, is relieved by rest, and becomes agonizing on the least motion. In the other lesions without these characteristics, the source of the irritation is to be traced to a point in the vertebral column, betrayed by tenderness on pressure, from which emanate acute darting sensations, pursuing the course of a nerve or nerves. Much may also be learned by an inquiry into the causes and mode of production of these different affections.

Managed properly, acute rheumatism, excepting the tetanoid variety, can nearly always be cured, and never proves immediately dangerous, unless it be in some important or vital organ. Neglected, however, or feebly treated, and especially where the

local inflammation is violent and continues long, it so deranges the structure of the parts as to irritate the system into hectic fever, followed by its wasting and debilitating consequences. Death in this way often happens. But, though such may be one of its ordinary terminations, it is deserving of remark, that cases in which there is slight, or perhaps, no appreciable affection of the joints, called rheumatic fever, are usually very refractory, and certainly still oftener prove fatal. No explanation of this curious fact, so far as I am aware, has heretofore been offered. Writers, in noticing it, pass it over without any attempt of the kind. It has for some time occurred to me, that the violence and intractability of such attacks were owing to some internal lesion or lesions of a rheumatic nature, maintaining this indomitable fever, which is to be deemed merely an effect. Not having had any opportunities of autopsic inspections, I am unable to verify the conjecture by this test. But the tendency of the disease to a centripetal direction is well known. Bouillaud, as we have seen, pretends to have demonstrated, in a very large proportion of instances, the connection of the acute cardiac phlegmasia with articular rheumatism. Even admitting such a co-existence, which, for reasons previously stated, I cannot, to the extent claimed, it would be unsatisfactory in application to the present instance. There is here scarcely ever any sensible affection of the joints, and those of the heart of an acute phlogistic nature, are at all times so conspicuously displayed that if any really existed, it is presumable they could not be overlooked. Between the two cases, there is, among other differences, this striking one, that in rheumatic fever the pulse is singularly full, strong, voluminous, bounding,—with high general excitement, and directly the reverse as to cardiac inflammation, either of the substance or membranes of the organ, it being feeble,—the cutaneous surface cold, attended by a disposition to syncope. The hypothesis which refers it to arteritis is equally objectionable, as that affection is characterized no less differently. To assign it to some vicious change in the blood, as has also been done, is to presuppose some antecedent morbid condition of the solids, which is really begging the question in discussion, and at the same time abandoning the rheumatic nature of the case. Let us rather than adopt such surmises, confess our ignorance, and endeavour after truth by more accurate researches.

Rheumatism, however, is, under all circumstances, exceedingly apt, on being confirmed, to run a tedious course of several weeks, and, when life is preserved, then gradually to slide into chronic degenerations, and especially the articular form of it.

The indications of convalescence are the subsidence of the local pain and inflammation, with abatement or total cessation of fever, a moist, soft, perspirable skin, open bowels, and copious discharges of urine, depositing a pink or lateritious sediment. Much the contrary are the adverse signs, and particularly a continuance of the local affection with indomitable fever, marked in its progress by cerebral and nervous disturbance. Complications of any kind, indeed, are of evil import, and, above all, those of the heart increase the difficulty of cure, and greatly enhance the danger of the ultimate result.

The phenomena on dissection, in acute rheumatism, are not well understood,—death, as just said, seldom happening to afford the means of inspection. Yet we are not destitute of intelligence on the subject. Examinations have shown that in the articular form, the structure of the joint is uniformly affected in some degree. The synovial membrane, especially, undergoes considerable changes, being found injected, red and swollen, with serous or sero-lymphatic, or sero-puruloid, or sanious effusions. Between the theca of the tendons, or rather within the surrounding cellular membrane, we meet with pretty nearly the same appearances. Extravasations of a peculiar gelatinous fluid are, however, more common events. The latter is the proper product of fibrous inflammation, which, at least, never ends in suppuration or gangrene,—and when other results take place in articular rheumatism, they are to be referred to the textures mentioned.

In the muscular species, scarcely any appreciable alteration is usually discernible. But in very violent attacks, the affected muscle exhibits a reddish-brown colour, and is so softened as readily to be torn, the interstitial membrane containing bloody serum or pus, and sometimes even an abscess.

Those of the heart excepted, which have been accurately determined, the appearance in the other internal organs I do not know, though it is presumable they are like the lesions of the external structures. The heart itself sometimes exhibits the characteristics of spasm only, where death suddenly happens.

But in more lingering cases, we are presented with all the phenomena of active phlogosis in its substance, its fibro-serous envelope, and in the lining of its cavity, the one or the whole being implicated. The great arteries, the aorta especially, have been discovered in similar conditions.

In many of its features it is so analogous to that of gout, the pathology of rheumatism need not detain us long. Consisting in inflammation of the fibrous or muscular tissue, to this most of its peculiarities may be assigned. That such is true, seems to be proved by the fact, that the disease originating in, or being translated to other parts, these are lost. Thus we see, when seizing on the mucous surface of the bowels or lungs, how strikingly is the difference. The eye affords a further conspicuous illustration to the same purport. Composed of diverse tissues, each phlogosed has its own characteristics, the sclerotica alone, which is fibrous, presenting those of a rheumatic affection.

Located precisely as gout, there is, however, as I have indicated, considerable dissimilarity in the nature of the two diseases, which, I repeat, is partly to be ascribed to a want of identity in the causes whence they proceed, the variations of morbid action being as much influenced by this circumstance as by the position it may occupy. Nor must we fail to advert to an additional consideration, which, perhaps, still more determines the discrepancies in these allied affections. Gout has its own distinctive diathesis, and whatever operates on it necessarily gives rise to phenomena *sui generis*, or changes the affinity to any other condition.

But other views have been and are entertained of the pathology of rheumatism. The idle notions of antiquity regarding it may be pretermitted, and, indeed, the only one I deem worthy of attention, is that recently promulgated, which supposes rheumatism to be a neuralgic affection, proceeding mainly from spinal irritation. Embarrassed by the peculiarity of the rheumatic state, having then no precise knowledge of the influence of causes or textures in this respect, pathologists, as long ago as the period when it was so much the habit to seek shelter for ignorance under the term nervous, had refuge in this resource. But of late the hypothesis has been presented in a more definitive and attractive shape. Having, in the consideration of neuralgia, pointed out the difference between it and rheumatism, I shall not now pass over the same ground of discussion. That

neuritis or neuralgia of the great nerves, and especially the sciatic, has been too frequently mistaken for rheumatism of the adjacent muscles, or certain spinal irritations, confounded with lumbago, affections of those of the small of the back, I am not now to be told. But further than this, I cannot admit, and must here recur to a remark formerly made, that no reason can be shown why the fibrous and muscular tissues may not be primarily affected as well as any other of those of the body. Finally, I must protest against the recent and, perhaps, growing notion of the very common coincidence of articular and cardiac rheumatism. Much could be urged in a formal dissent to it. Compressed, however, in a word, my objections to it are,—that it seems scarcely possible that a phenomenon, so constant and prominent as is alleged, could have escaped the close observers of disease for thousands of years,—that though it has commanded my attention, I have seen comparatively little towards its verification,—that did it exist, rheumatism would be a far more fatal affection than warranted by fact,—and that it is supported by no adequate authority. Whence originated the dogma, and by whom is it vindicated? From Bonillaud it comes, one of those individuals who seem to me to be always actuated more by the vain desire of acquiring notoriety than establishing philosophic truth. Confident and intrepid as he is in the assertion of his views, they are hardly enunciated before abandoned by himself, and replaced by others often directly the contrary; he ought not to complain if we withhold from his statements our prompt or entire acquiescence. Exactly do I agree with Chomel, that the instances of rheumatism under these circumstances are rare, and exceptional only to a very general rule.

The treatment of few diseases of so obvious a character is less determined than that of rheumatism. Diametrically opposite plans, and the most irreconcilable special remedies, have, and continue to be employed. Especially is this want of uniformity to be remarked among the British writers, many of whom believe that we have little or no control over it,—the cures which happen being the result of the efforts of nature. An eminent practitioner of London having been asked, “what is the best remedy for acute rheumatism,” replied, “six weeks,” by which he meant to convey the impression of his distrust of all artificial means, and that it might spontaneously subside in that period,

whatever was done or left undone. Epigrammatic as this answer may be, it is like most pointed sayings, not true. For the most part, the disease proves very manageable when properly attended to in the early stage.

Differing, however, from me, Mr. Budd, a very recent and authoritative writer, and in which opinion he is supported by many of his contemporaries, pronounces "that no single remedy is yet known, nor any plan of treatment, which has the power of cutting short the course of acute rheumatism."

Much of what I should have had to say of the cure of the disease has been anticipated in that of gout. The treatment of it in our own climate, at least, it will be right to commence with copious venesection, which is pointedly called for by the symptoms and by the appearance of the blood, this being, perhaps, more inflammatory than in any other affection. No substitute exists for the lancet in this case. The other remedies will be unproductive of utility, and never should be prescribed, till the intensity of action is overcome by direct depletion. It is my wish to press this precept strongly, since, in most of the writers, bleeding is cautiously advised, and by some altogether interdicted, as nugatory in relation to the cure, calculated to lead to sudden translations of the disease to vital parts, or to run it into the chronic state. These are the objections of theory or ignorance, and must not be listened to, for an instant. Bleeding here, when adequately urged, is nearly as effectual in arresting the attack as in the other phlegmasiae, and, instead of promoting, has a contrary effect as to the alleged metastasis. The instances of the kind, amounting to several, which have come under my notice, occurred where no blood had been lost. It is an error to suppose that disease is invited to a part by the weakness of it, which seems to be the foundation of the dread of the remedy. The reverse is true, or it is attracted by a pre-existing phlogistic irritation, endowing it with an increased susceptibility, by the removal of which, and bleeding is the best means of doing it, the chance of its happening is diminished. By this mode, a sprain or other injury attracts it, and do we not find the same effect from irritating revulsives, as rubefacients, sinapisms, or blisters, exemplified, especially, in the operation of these applications in retrocedent or misplaced gout? Not less absurd is the supposition that bleeding promotes the transmutation of the disease into the chronic state.

It is a rule, to which rheumatism forms no exception, that, proportioned to the rapidity with which acute inflammations are reduced, and to this end, surely, the loss of blood is most efficient, is the security against such a result. Nor is any thing more certain to my mind than that the tendency in the disease, which has also been complained of by some, to cerebral disturbance and petechial eruptions, must be ascribed to the premature substitution of a stimulating and tonic, for the antiphlogistic course, and, especially, venesection.

But very differently is the process appreciated by the writers of nearly every country of Europe.

To so great an extent has this prejudice against bleeding been carried, by some of the British practitioners especially, that even the Peruvian bark was substituted in its place! During my attendance in the London hospitals, the use of it was generally adopted, and, undoubtedly, it has received the sanction of several of the highest English authorities, for more than a century. By Morton, the cotemporary of Sydenham, it was probably introduced, and claims, subsequently, the distinguished support of Heberden, Fothergill, Saunders, Baker, Fordyce, Haygarth, &c. It is really extraordinary to see the confidence with which the bark is spoken of by Haygarth, who, on the most ample experience with it, says: "Except mercury, in syphilis, there are few, and, perhaps, no examples, where a remedy produces such speedy relief and perfect recovery, in so formidable a disease. For many years, I have been thoroughly convinced that the Peruvian bark has a much more powerful effect in the rheumatic than in any other fever, and that it does not cure even an ague so certainly or so quickly."

Nor have the European practitioners become emancipated entirely from the thraldom of this error, even at the present moment. Elliotson and Johnson, Davis and Watson, who are among the most conspicuous of the English, at least, seem to labour under it, and we are told that it almost universally continues with those of France.

That there is a very egregious fallacy in these statements is obvious. Never did I perceive the least advantage, in any one case of the early stage of the disease, from the practice, and often the most manifest mischief, in which sentiment I am fully supported by the best authorities of our country. Yet, I shall pre-

sently show that, properly applied, the bark is valuable in this disease.

Nor is it to be supposed, from what I have said, that all the British writers concur in the proscription of bleeding in rheumatism. This is very far from the fact, since, among others, it is strenuously recommended by Sydenham, Pringle, Cullen, Scudamore, &c.

It is very amusing to us, who have been so long and so thoroughly conversant with this practice, to listen to the ignorance or presumption of a late French writer, in preferring his pretensions to it as a discovery of his own. Bouillaud, whom I have previously cited, in a late publication, after harshly censuring Louis, Chomel, and others of his contemporaries, who, he says, pursue an opposite method, proclaims, in a burst of enthusiasm, the utility of blood-letting in the disease, as a revelation, for the first time, made to himself alone !

Next, the bowels ought to be freely evacuated, by a large dose of calomel, worked off by some quicker medicine, and the saline articles are mostly preferred for the purpose. The combination of calcined magnesia, Epsom salts, and the tincture of colchicum, noticed formerly, is, according to my own experience, peculiarly well suited. It empties the bowels adequately, and controls more effectually the rheumatic action. Yet purging by any article is here less serviceable than in the kindred arthritic affection, probably from rheumatism, not, like gout, primarily originating in a depravation of the alimentary canal. My remarks have reference to ordinary rheumatism. The case being modified by miasmatic influence, then purging, and especially by calomel, proves exceedingly efficacious, and under all circumstances does good, on the principle of reducing vascular action and febrile excitement, as well as by preparing the way for the efficient operation of other remedies.

Emetics have also been directed in rheumatism. Excepting in the form of the disease just indicated, I have no knowledge of them, and must, therefore, advance an opinion diffidently, in relation to their powers. The stomach is here much oppressed and nauseated, and they prove serviceable in a mode which I need not explain.

As somewhat confirmatory of their efficacy, the fact may be stated, that in this variety of the disease, whenever spontaneous

vomiting takes place, there is, for a time, a very marked mitigation of both the general and local affections.

Evacuations having been thus premised, the treatment, whatever may be the precise character of the case, is resolved into the use of the febrifuges. Combined in small portions with the nitrate of potash, and sometimes calomel, the tartarized antimony is greatly prescribed. By this preparation, vascular action is further subdued, or kept under, and, what is equally important, the skin may be restored to a more healthy condition.

It is at this conjunction, or even at an earlier period, that the contra-stimulant plan of the Italian school, consisting of immense doses of emetic tartar, is proposed. What was said of it in relation to pneumonic inflammation is equally pertinent to the present disease, and I must be content to refer to the criticism on the practice delivered on that occasion.

Febrile excitement becoming further reduced, a recurrence is usually had to the more direct means of sweating. This is a mode of combating rheumatism, which has long been consecrated to the purpose by the undivided opinions of every description of practitioners, and is too often abused. It is well ascertained that sweating is always pernicious, if practised in the early or phlogistic stage. Even when it comes on spontaneously, it never, as previously stated, affords any relief, and usually aggravates the distress. We commence with the milder diaphoretics, and afterwards employ articles rather more stimulating, of which the most efficacious is the Dover's powder. But it is a popular practice of our country, not without some professional sanction, to treat this state of rheumatism with the Virginia snakeroot, the thoroughwort, and, above all, by the pleurisy-root. Each of these articles being very certainly diaphoretic, I have no doubt, when judiciously directed, of their utility.

To the prohibition of early and active sweating, an exception exists in the torpid or tetanoid variety of the disease. The indication here, at first, is to awaken sensibility, and to bring on a reaction, with which intentions I have found the vapour bath and frictions, aided by the Dover's powder, perseveringly continued, the most effectual. Development of action having taken place, venesection and its auxiliaries may be resorted to with those other means appropriated to the more ordinary forms of the disease in the several stages.

As in gout, diuretics sometimes prove of immense advantage in rheumatism. Nearly the same articles, as well as the rule for their employment, are suited to both cases.

Colchicum, in union with the spirits of nitre, is especially worthy of trial. Its properties are very peculiar, and it seems, on some occasions, to display a sort of specific agency. But the pipsissewa, the pyrola umbellata of the botanists, has acquired so much repute, as to have had bestowed on it the popular title of *rheumatism weed*, and may hence have claims to attention.

An old practice, with which I was perfectly familiar, of treating this case by the liberal use of the nitrate of potash, an ounce or more, daily, in the freest dilution, has been lately revived by Gendrin, Aran, and other Parisian physicians, and, as usual, with claims to originality, to which they have not the slightest pretensions. Brocklesby proclaimed its utility in his work, entitled *Economical and Medical Observations*, printed in 1764; not long afterwards it appeared in Macbride's *Practice of Physic*, and came to be well known among us. Few stomachs will bear the article to such an amount, and, on this account, I presume, it fell into abeyance. More moderately given, it often proves very useful, and is one of the most common of our prescriptions. Of the hydriodate of potash, which, of late, has acquired no inconsiderable celebrity, I have now only to say, that I believe it is finally admitted to be only adapted to certain states of chronic rheumatism, where I shall again speak of it.

These various remedies failing, and where, especially, evidence arises of a disposition in the case to glide into the chronic state, we should not hesitate to interpose mercury, with a view to a moderate impression, which usually proves a very decisive process. Having presently occasion to say more of it, I shall now only further remark, that, under the circumstances immediately before us, it will be found often expedient and, particularly if much pain exists, to unite opium, and sometimes ipecacuanha, to the calomel.

Essentially is this the practice at present so urged by some of the English writers, and the merit of introducing which is assigned to the late Dr. Hope, the author of the work on the diseases of the heart. The only difference, indeed, consists in the latter, after one or two bleedings in robust patients, directing ten grains of calomel with a grain and a half of opium every night,

and a purge in the morning, so as to procure several openings,—then a saline draught with twenty drops of the tincture of colchicum, and five grains of Dover's powder thrice a day,—steadily pursuing this course throughout the case. Certainly there is nothing new in this plan, it being merely a modification of other modes long since employed, and I cannot doubt its inferiority to the one suggested by me.

In attending to these general indications, the local affection is not to be overlooked. The pain of it, when violent, can hardly be borne, and has, certainly, the effect of keeping up fever. On every account, therefore, we should endeavour to do it away.—But, as in gout, some difference of opinion prevails as to the proper measures to be adopted. Cold applications, even snow or ice, have been lately employed. I cannot, however, be persuaded of their general propriety. Granting, for a moment, the utility of them, I should much apprehend a metastasis. Yet I am in possession of some evidence in support of this practice, of too much importance to be withheld. By Professor Jackson, of Boston, I have understood, it is constantly pursued, and not less by the physicians of Russia and Spain, and, as is represented, with unequivocal advantage. Yet I repeat, that my own experience, confirmed by the tenour of medical authority, is against it.

No great relief is, however, afforded by opposite means or warm fomentations, though I cannot allow that they are utterly destitute of effect. The other expedients enumerated under the head of gout, I will not now repeat.

The practice of Mr. Balfour has attracted no inconsiderable attention. It consists in bandaging, as tightly as can be endured, the affected part by a flannel roller, with the occasional use of frictions. Whatever may be its utility, in some other applications, of which I am hereafter to speak, I cannot consider it adapted to an inflamed and sensible condition of the local affection.

Discarding most of the preceding measures as nugatory, or of inferior efficacy, our main reliance is to be placed on topical bleeding by leeches or cups, frequently renewed,—and next on repeated blisters. Governed by those theoretical notions, to which reference was formerly made, these appliances are now directed by some practitioners to the spine. That, on certain occasions, they have thus answered better, I am unwilling to deny, though, at the same time, I must insist, that, where more successful, the

cases were not genuine rheumatism. By revulsion, such applications to a distant point may be doubtless serviceable. Yet it is equally true, that they oftener fail, and are generally less effectual than when practised near the affected part.

In regard to the use of opium, we are governed, very much, as in gout. It seldom fails, according to my experience, to exasperate *acute unsubdued* rheumatism. Even in the form of Dover's powder, and where it produces perspiration, too, it mostly, without abating pain, adds to the heat and restlessness. This fact is particularly entitled to attention, as patients, in extreme anguish, very often demand, in a clamorous manner, a dose of the medicine.

Different, however, are the notions of some in this respect. Corrigan, of Dublin, especially, whose reputation is distinguished, seems to treat the disease almost exclusively by opium, and, as he declares, with very great success. The ordinary doses of the article, he deems prejudicial, by exasperation of the excitement, and gives two grains of it every three hours, so that the aggregate has amounted to sixteen grains in some instances, during a day and night. The sedative effect being thus procured, we are assured by him that the pain is relieved, and complete cures speedily follow. Contradictory as this representation is, to my own experience, I will not discourage a fairer and more extensive trial of the plan than I have made.

Nor must I deny, though still persuaded that the use of opium generally should be regulated as I have enjoined, that there are cases in which it may be resorted to at a much earlier period than pointed out by me.

The form of the disease, to which I refer, sometimes succeeds genuine rheumatism, after a few days' continuance. It is, however, more commonly met with as an original state in women, or other persons of weak and irritable habits. There is, here, no force of vascular action, and incomparably more of irritation than inflammation. Either alone, or in conjunction with calomel and ipecacuanha, as has before been mentioned, opium is unequivocally serviceable.

Located in the more diffused portions of the fibrous tissue, and, especially, the periosteum, essentially the same course is to be pursued in the disease. What I shall say of the affection of the pericranium, to which my remarks will be confined, may suffice as a general direction. The remedies, here, are steaming, leeching, blistering the nape of the neck, and keeping the head warm

by an envelope of cotton, or wool, or a flannel or fur cap. Combined with these topical means, evacuants of the bowels are serviceable; nauseants are likewise so, and vomiting will promptly relieve it, on some occasions. As further means, opiate diaphoretics are deserving of confidence. Many persons, with thin hair, or entirely bald, are very susceptible to such attacks, on the slightest exposure. Wearing a wig by day, and a warm cap at night, I have hardly ever known to fail as preventives.

We come now more immediately to the muscular form of rheumatism, or myositis. Being of a febrile or inflammatory character, the depletory, evacuant, and other general remedies already recited, are here also demanded. As, however, the management of the disease, in its several positions, is somewhat modified, the peculiarities, in this respect, should be indicated, and I shall commence with the most simple.

Confined to the mere surfaces of the body, productive of soreness only, the remedies are the warm or vapour bath—frictions, with oil and laudanum, and the mild diaphoretics. But when deeper seated in the muscular tissues, a more energetic course is to be pursued. Not the least distressing of such attacks are those of the muscles of the neck, causing rigidity with acute pain, and by neglect, sometimes ending in permanent deformity. Little else, at first, is usually required than ironing the part repeatedly, and covering it with a pad of cotton or wool. But these means not answering, a resort must be had to steaming it, and ultimately, to leeches and a blister.

Nearly the same plan may be adopted in regard to pleurodyne—though early applied, a sinapis will generally succeed alone. The muscles of the loins or those about the hip being implicated, from their magnitude, the case presents, in some respects, a more serious character. Connected with extreme agony, on an attempt to rise from a seat, or to turn in bed, there may be a total inability to do either, and I have seen from it even paralysis of the lower extremities to be induced.

The milder states of the affection are relievable by ironing the surface frequently, or by frictions with Cayenne pepper and brandy, or the essence of mustard, or any other irritating liniment, or by a sinapis or by pouring a stream of water, as hot as can be borne, on the part, or even by a thick pad of cotton or wool to it.

It is an interesting fact, that an impression made on the feet by a stimulating pediluvium, or by placing them to the fire, or on hot

bricks, or any similar article, or by a mustard plaster, will sometimes prove more effectual than by a direct application to the seat of the affection. Not availing, these means should be succeeded by a copious loss of blood, especially by cups or leeches to the back, and then vesication. It is very inconvenient to purge, though when it can be done without great suffering, it ought not to be omitted. An anodyne diaphoretic, after free depletion, is decidedly useful.

We are aware that rheumatism occasionally takes an inward direction, assailing some one of the organs of the great cavities. The treatment, however, does not differ from that of gout in the same positions, to recapitulate which cannot be exacted. Enough may it be, to repeat that it consists mainly of the freest loss of blood generally and locally—of epispastics over the suffering part, and then of revulsives, either at the original seat of the affection, or to the lower extremities, as the case may have been metastatic, or primarily in some internal structure.

More of the affection of the heart should I have said, here, had I not treated of it in another and more appropriate place.

Lastly, I have to advert to rheumatic fever, or that state of the disease, where, with the highest possible degree of vascular excitement, very trivial, or, perhaps, not any topical lesion is apparent, either within or outwardly. Yet such is to be suspected among the interior organs, and as influencing the cure, it ought to be sought out diligently. It is here, *a fortiori*, that the general remedies already enumerated are to be employed to the greatest extent, especially venesection,—and in the event of the detection of local inflammation, the appropriate means for its removal must be brought into requisition.

The diet in acute rheumatism of every shape should be abstemious, and of the lowest description—and the temperature of the chamber so regulated, as equally to avoid an excess of heat or cold, the one exciting fever and restlessness, and the other exacerbating pain.

In conducting the cure of this disease, I have proposed the most energetic practice. My conviction is, that when it assumes the character in which it has been presented by me, it is one of the highest grades of inflammatory fever imperatively demanding such a course, and which, though not always capable of arresting its progress, is alone calculated to mitigate its violence, and to prevent those degenerations, so often ending in some sad cata-

strophe. But, happily, the tenour of the disease is otherwise, sometimes extremely mild, and as its gradations may be, so are the remedies to be tempered and accommodated, from the most active down to the most lenient, or even to the mere regulation of regimen, or perhaps an entire resignation of the case to the uncontrolled resources of nature.

CHRONIC RHEUMATISM.

By this is usually meant that state of the disease in which there are pains, without inflammation or fever. But this definition, though a common one, does not universally apply. Cases are of frequent occurrence, which would be more correctly denominated subacute rheumatism. It is, indeed, hardly possible to draw the line with exactness, between the several states of it, so shaded are they into each other, at least in many instances. The locations, however, being the same as the acute, it is similarly divided into articular and muscular, though, as I have proposed, it might be, with greater propriety, into fibrous and muscular rheumatism. From the want of precision in our views as to what really constituted the chronic conditions of the disease, these have been exceedingly multiplied. Every obscure or anomalous pain, to which no other specific character could readily be assigned, it was once the custom to refer to this source, and very often most improperly. By our increased knowledge of the pathology of the nervous system, we have, however, become more enlightened on the subject, and a nicer discrimination is now practised in the separation of the rheumatic from the neuralgic affections. Nevertheless, such are the diversities of the disease, that it is difficult, and perhaps impossible, to embrace the whole under any general description.

Chronic articular rheumatism is most commonly exhibited, with the features of the acute, considerably mitigated or subdued, among which are a small, hard, corded, and accelerated pulse, pain peculiarly liable to shift its position, increased by warmth, and especially at night, in bed, when covered by a load of clothes. The tongue is coated by white fur, or clean and florid—the skin dry, with an unequally diffused temperature—the bowels costive—and the articulations, when permanently the seat of it, are oedematous, rather than swollen by inflammation.

In other cases more decidedly chronic, with an absence of the

febrile movement, the pulse being, indeed, exceedingly feeble, little pain is felt except on motion, and which is alleviated, instead of increased by warmth. The affected limb is cold, and sometimes so torpid and relaxed as to amount nearly to paralysis.

There is a further condition, with unrelenting rigidity of one or more of the joints, occasioned by great structural derangement from extravasations, and thickening of the tissues entering into the articulation, attended constantly by more or less of an ache, often exacerbated to excruciation, and tending to hectic fever, or it is fully established.

Frequently, in this condition, we meet with the most hideous distortions and deformities, and especially when the articulations and muscles are both concerned.

To these may be added, that variety seated in the periosteum, the symptoms of which have a close resemblance to those of the acute affection, the chief difference consisting in the membrane sometimes undergoing much greater and more prominent changes by thickening or otherwise. It is here that nodes are observable.

Not less, perhaps, does muscular rheumatism exhibit its several gradations, from the slightest affection to a total loss of power in one or more of the muscles. Now and then, too, we have instances of it characterized by an atrophy of the muscles, in which the interstitial and investing cellular membrane, and, as it would appear, sometimes the muscular substance itself, are so far removed, that little else than the tendons and fasciæ is left.

An extraordinary example of this kind was afforded by Calvin Edson, who, some years ago, exhibited his figure as a public spectacle. By long protracted rheumatism, he was reduced from a robust man to comparatively a *living skeleton*, as he, indeed, denominated himself.

Two other instances I have seen, one in a patient in the alms-house, and the other in a physician from South Carolina, where the general ravages of the disease, scarcely less, were even more in the hands and wrists, not a vestige of muscle apparently remaining in these parts. Here, though at the time no pain existed, there had been severe and protracted rheumatic suffering. Marasmus of the muscles, however, takes place occasionally without any appreciable rheumatism, or if such attacks as I allude to are of this nature, they must be of the kind vulgarly called *dumb rheumatism*,—devoid of expression by symptoms. The disease mostly comes on with no premonition; sometimes, when the in-

dividual seems to be in good health,—and the first indication of it is the obvious wasting of one or more of the large muscles, usually those of the neck or back, or hips, with corresponding imperfection in the motions dependent on these muscles. Gradually other muscles become involved to a greater or less extent, and emaciation proceeds in them till it is extreme, and all sorts of distortions and deformities are exhibited. For a long period, the general system seems to sustain little or no detriment from this morbid process, and what is particularly remarkable, the digestive functions are, to all appearance, actively performed. But ultimately it is different, and febrile irritation arising, with an aggravation of condition, the result is rapidly hastened. Five cases of this extraordinary affection I have seen, all brought to me from the country, the whole of which ended disastrously. Three of these were brothers, and the fourth, a nephew of them, is now under the care of Drs. Jackson, Mitchell and myself, and I have heard that another member of the same connection has been similarly afflicted. Nevertheless, an hereditary taint cannot be suspected—their parents and remoter ancestors having never betrayed any thing of the kind. The females, too, of the family have entirely escaped. All these cases began to be developed about the season of puberty, and ran on to that of manhood. Horses are very liable to it, the wasting chiefly taking place in the large muscles of the neck, which, by the vulgar, is called the *Sweeney*.

Besides these several general conditions, we very often meet with those local muscular affections, pleurodynia, lumbago, sciatica, &c., formerly noticed as incident to acute rheumatism, and which are febrile and inflammatory, or the reverse, resembling rather nervous irritations.

Frequently, also, are the internal organs and other structures assailed, presenting similar modifications. The kidneys, heart, and alimentary canal and uterus have especially this liability. Connected with these lesions, the disturbance of the system is very slight, or considerable, the general health pretty well maintained, or greatly deranged in diverse modes. Most commonly, however, I think, some disorder of the digestive process is observable, and with deficient nutrition, hectic fever and emaciation ensue. Each of the varieties of the internal disease is found to exist separately, or complicated with lesions of other parts.

Chronic rheumatism may be the sequel of the acute, or of an

original nature,—and the latter is exceedingly prevalent in positions exposed to a damp atmosphere. Every form of it is so much influenced by such a state of weather, that its approach can be often predicted with the accuracy of a barometer by the feelings excited. This susceptibility is vastly increased by any previous injury to a joint or a bone, as a strain, luxation, or fracture, and by the abuse of mercury. Even when all is serenity and sunshine, we habitually hear some old rheumatic, grumbling at the exasperation of his aches, and truly proclaiming the forthcoming of rain or a tempest.

Certain neuralgic affections are the only ones with which this disease can be confounded.

But having heretofore pointed out the distinctions between them, I shall now only observe, that the former are decidedly paroxysmal, characterized by the most intense pain, sharp and excruciating, without phlogosis or swelling,—and that usually, on examining the spine, some portion of it will be discovered by pressure or percussion, more or less tender.

Need I remark, that the chronic are far more intractable in the management than recent attacks of rheumatism? There are states of the disease, indeed, utterly irremediable, and sooner or later prove fatal. Yet, sometimes, after a long endurance of the affection, all irritation ceases, and the individual, crippled and deformed, is restored to health, interrupted only in this respect by the recurrence of aches in unfavourable states of weather. Not easy is it, on the whole, to predict the result of the disease. It sometimes ends fatally in a very short time without any very obvious reason, and on other occasions it will run a lengthened course in a manner equally unintelligible. I have seen it, with no great severity of character, to kill in a few weeks, and to be indefinitely protracted under opposite circumstances. For upwards of twenty years I attended two ladies with the disease, always suffering, often severely, and who, for more than half this period, were bed-ridden. They had scarcely a joint which was not so rigid as to be immovable, and the limbs, upper and lower, twisted or bent in the most unnatural shapes. The retention of the digestive and nutritive functions is a very favourable sign, and a defect in these, with hectic or nervous irritation, directly the contrary.

Much of the appearances on dissection in the disease, has been anticipated under a preceding head. Every degree of disorgani-

zation of the articular structures is met with in some instances—changes in the bursæ mucosæ, wasting or thickening of the synovial membrane and of the cartilages, rigidity of the ligaments, extravasations, and occasionally firm ankylosis of the joints. It is said, and I believe, correctly, that those saline concretions, so common in gout, never occur in articular rheumatism, not even when it attacks the small joints, however severely or protractedly.

Nor do the muscles escape. By Portal and Beclard particularly, a gelatinous fluid has been observed within the cellular sheath and surrounding the fibres themselves. The latter has also detected concretions of various forms and appearances between the interstices of the muscular fibres, and Lieutaud mentions osseous deposits in the same positions. But the more common degeneration of muscles is into a withered, condensed, indurated, rigid state, approaching to a tendinous nature, and sometimes to such an extent as to have the whole of the interstitial tissue and the cellular membrane covering the muscle absorbed, as in the instances previously cited.

Excepting the heart and kidney, little is known of what takes place in the internal affections. These organs suffer every sort of injury, from the simplest to the most extensive that inflammation can produce.

Of the pathology of chronic rheumatism I have scarcely a word to say, it being, in every material respect, the same as that of the acute disease. There is, indeed, only one point which I shall, at present, notice. More than in regard to the acute, has it lately been endeavoured by some writers to assimilate it to certain nervous irritations, or, in other words, to take it from the fibrous and muscular, and place it among the lesions of the spinal system. That certain attacks of an extremely painful character following the course of a nerve supposed to be rheumatic, are really neuralgic, cannot be questioned,—and such a view I have inculcated for many years, especially in relation to sciatica. Yet that an essential difference exists between the two affections, neuralgia and rheumatism, I think I have shown on a preceding occasion.

The treatment of that state of the disease in which there is still a remnant of inflammation, and some activity of the circulation, I shall first consider. Moderate bleedings, general or local, are here proper to be occasionally repeated, till the force of this

diathesis is overcome. As auxiliary to the same design, much may be expected from purging.

Distinct from the positive evidence of its efficacy in this case, we are now aware of its utility in the chronic articular affections, whatever may be their nature, or the cause by which they are excited. To the late Professor Physick the credit is undoubtedly due for this general extension of it, and which is not the least of the many practical improvements to be traced to his sagacity and experience. There is no chronic inflammation of a joint, into the treatment of which he did not make purging, active and continued, a leading and prominent ingredient. This, indeed, with absolute rest of the limb and the lowest diet, was nearly all which he did, and confessedly, he accomplished many astonishing cures.

Emetics are here also employed by some ; not so much, however, as evacuants, as to mitigate pain and relieve the skin. But, on diaphoretics, properly so called, greater reliance is placed.

Lest undue excitement may be revived, it will be prudent to commence with the mildest of them, the acetate of ammonia, the dulcified spirit of nitre, the neutral mixture, the antimonials, or the nitrate of potash, alone, or combined with opiates.

The phlogistic state, however, being removed, or never having existed in the case, another course is to be pursued. Not less to awaken susceptibility to remedial impressions than to relax the surface, the warm bath, and particularly a salt bath, which is far more effectual, is much prescribed. To be of essential service, it requires to be very often renewed, followed by frictions, so as to excite a glow on the surface. The vapour bath, as now employed, by a convenient apparatus, either the vapour of pure water, or variously medicated, is also a valuable resource.

Concurring to the same end, the active diaphoretics, as Dover's powder, are given, though profuse sweating, in the feeble or protracted stage of the complaint, is an equivocal process. It may do good, while, more generally, it will be found to be productive of harm, exhausting strength, without dislodging or breaking up the disease. More is often done by those articles which have a relation to the cutaneous surface without inducing much perspiration. Of this description are camphor, the carbonate of ammonia, the mczereon, the sassafras, the sarsaparilla, the gum guaiacum, &c. The most powerful of these, in common estimation, are the carbonate of ammonia and the guaiacum,

which may be directed separately, or together, forming the volatile tincture of guaiacum. By long usage, this medicine has been appropriated to chronic rheumatism. The guaiacum is used in decoction, either alone, or with the sarsaparilla, and other ingredients entering into the composition of the Lisbon diet drink. Cases do, moreover, occur, where the sarsaparilla, in simple decoction, is of great advantage. The syrup, as prepared in this city, or that of Cusinier, is, however, on the whole, to be preferred. To this class of medicines belongs sulphur, which, though more generally useful, perhaps, displays its best powers when the disease is seated on the surface of the body. But, in whatever manner any of these articles is prescribed, a decided effect is only gained by perseverance.

Many years ago, I introduced the savin into the cure of this disease, and my reliance on its powers has increased with my opportunities of witnessing its operations. Of this article I have treated at length in my Therapeutics, to which work I refer for the minute details relative to its use. It is peculiarly adapted to that state of the disease attended by rigidity of the joints, from extravasations—and what is not a little curious, in arresting absorption in marasmus of the muscles. In two of the cases mentioned, brought on by rheumatism, it completely effected the purpose, and in one of the other description, I am assured that it would have succeeded, had it not been impatiently rejected. In no application of it, made by me, was I able to perceive any immediate advantage. The system must be fully under its impression, which is evinced by a sense of warmth, itching, or even an eruption, before the disease begins to yield.

As much as in acute rheumatism, are diuretics here directed, and, perhaps, with greater success, of which, among the best, is the nitrate of potash in very free dilution. Yet, it has not the merit of the colchicum, which, eminently serviceable in every variety of the chronic disease, appears to me to be particularly so in cardiac and nephritic rheumatism.

The terebinthines and balsams are also deserving of notice, and especially in lumbago and sciatica. Nearly under the same circumstances mustard seed is serviceable, and more so where torpor of the bowels exists, it being an excellent laxative.

We have reached another description of remedies, or the tonics, among which are the Peruvian bark, to be administered by itself, or in conjunction with some stimulating article, or preferably

the sulphate of quinine, and I have to add the arsenical preparations as of great value. These articles very strikingly illustrate the importance of a just adaptation of means to the pathological condition. Each of them is employed in rheumatism, and we have seen with what opposite results, and how unsettled is medical opinion with regard to their efficacy or even propriety. They are wholly misapplied to its febrile or inflammatory state, and are as certainly useful in its advanced or reduced shapes. Better suited to intermittent rheumatism, their utility is far more extensive. Given in any of its weak or atonic conditions, they are sometimes productive of very great advantage.

It may not be out of place here to notice a popular remedy, which I really think has some claims to attention. My allusion is to the berry of the common poke, the *phytolacca decandria* of the botanists. Either the juice of the fresh berries, or a tincture of them, is the common preparation,—of which half a wine-glassful may be taken several times a day. By what mode of action it does good, is not very evident. Not without general utility, I have found it especially so in the rheumatic affections of the chest, in confirmation of which, I shall repeat that it is very serviceable in spasmodic asthma.

As yet, I have said nothing of mercury in chronic rheumatism. Let it not, however, be supposed, on this account, that I attach the less importance to it. As in many other cases, it should be tried when other means have failed. Commonly, I have found it as beneficial, perhaps more so, in chronic, where an inflammatory condition prevails, than in acute rheumatism. More than any thing else it seems to subvert the phlogistic diathesis, often so obstinately persistent under other remedies. On many occasions, I have remarked, where a hard, contracted, irritated pulse, with blood clogged and sizy, could not otherwise be overcome, the most decided change was at once wrought by a moderate mercurial impression. It is given by itself, as an alterative, though more generally united with opium and ipecacuanha. This is an excellent prescription. To substitute, in the place of opium, some other of the narcotics, and particularly cicuta, henbane, belladonna, or the stramonium, is a favourite practice with many. But little, I suspect, is gained by the exchange. The stramonium, however, has been highly extolled by Marcet and other British authorities, in cases with nervous irritation and acute pain.

The difference of sentiment in regard to mercury can only proceed from its abuse. Carried to a great extent, there is no case in which it is not either positively injurious, or its salutary effect diminished. The proper medium here, and under all circumstances where the mercurial impression is desirable, is so to regulate the process as to maintain it moderately, never allowing it to run into excess.

Nitric, or rather the nitro-muriatic acid, has been a good deal directed in this disease. My own experience will not allow me to decide very positively on the degree of its efficacy, though I have had, occasionally, some reason to be well pleased with it. Many of the European writers speak favourably of it, and from its properties, we should be led to suppose, independently of all evidence, that it might be beneficially employed. When prescribed by me, it has been after a mercurial course, or as a substitute for it, where, from debility or other causes, mercury itself seemed to be inadmissible.

An allusion has already been made to the hydriodate of potash as a remedy represented to be of immense utility in this state of the disease. The confidence of some, indeed, in it, is unqualified, while others speak of it more temperately and more justly. From all I have heard of its use, having really tried it very little myself, though inclined to believe that it has sometimes done good, I cannot concur in the laudation it receives. Distinct from my distrust of all new nostrums, with high pretensions, it has been increased, in the present instance, by the consideration that when originally announced, it was declared to be alike appropriate to all the forms of rheumatism, and that now, by common consent, its use is limited pretty much to the chronic states of the perios teal affection. Mistaken in the beginning, as its advocates were, I cannot help suspecting that they may not be right, at present; and, at all events, I leave to others to go on experimenting till the matter is better determined. Well-tried remedies, like well-tried friends, I always adhere to, and am very slow and reluctant to abandon either without very sufficient grounds. To do it in the former instance shows a weak and credulous head, and in the latter, a capricious or depraved heart.

The local treatment is so nearly the same as in the acute disease, that of it I need not say much. It consists of topical bleeding, blisters, caustic or moxa issues, frictions, and the flannel roller, accommodated to its several conditions. The latter has

not acquired as much reputation as it deserves, owing to the indiscriminate manner in which it has been employed. As I formerly observed, it has, in the trials which I have made of it, entirely failed in acute rheumatism, the pain of the compression not being durable. But in that stage of the disease where inflammation is less active and sensibility correspondingly reduced, I have known it to be highly advantageous. The limb is to be as tightly bandaged as can be conveniently borne, to be removed twice a day, and frictions applied, which should be continued for several weeks in old, obdurate cases.

The *modus operandi* of the remedy seems to me very plain. Especially in chronic inflammation, the vessels of a part are preternaturally distended, with a loss, at the same time, of contractility and the power of removing their contents, in consequence of which blood unduly accumulates, and swelling and pain are the results. By compression, the calibre of the relaxed vessels is lessened by the approximation of their sides, the blood propelled out of them, and relief afforded. But, while so much is accomplished, effects no less beneficial are permanently induced, in the support thus lent to the vessels, and, indeed, to all the parts involved in the disease, till they re-acquire their natural tone.

From frictions, which are to be considered as "merely successive acts of compression," nearly the same effects are attained, though not so certainly, or to an equal extent.

These processes, in another view, are useful. As much as they promote the circulation in the loaded and oppressed capillaries, do they also invigorate the powers of absorption,—by which effusions and other extraneous matters are removed, and equally tend to preserve the temperature of the part, which is usually low, or ill developed. The practice was directed by me long before I saw Balfour's book.

Among the means supposed to afford relief to the topical affection, is an operation entitled *acupuncture*, from *acus*, a needle, and *punctura*, a puncture, which has been strongly advised in this and other analogous affections. It is an ancient and common expedient among the Chinese, and a century and a half ago was much employed on the continent of Europe, having, however, fallen into disuse, and again revived, particularly in France. The operation consists in the introduction of one or more long, delicate needles by a rotary motion between the forefinger and thumb, through the integuments, to a considerable

depth, which are to remain for a longer or shorter time, according to circumstances. The part most affected is to be selected for the application.

It seems to be admitted, that this operation is only applicable to local muscular rheumatism and chiefly in the chronic state, of an acutely painful character, resembling neuralgia, such as sciatica especially. Whatever may be its merits, which I do not rate highly, still more effectual, undoubtedly, are *douches*, so called by the French. These consist of pouring water through tubes of different calibres, from a height of many feet on the affected part, of various temperatures, from as hot as can be borne down to a very low degree of cold.

It remains to suggest the importance of early exercising the diseased parts, whether the articulations or muscles. These, on the subsidence of inflammation, are left frequently in a state without motion, or in which it is very imperfectly performed. The joints are inflexible from the extravasations within them, and the muscles from the same cause depositions in their inter-cellular texture, or by long disuse, become rigid or relaxed and wasted, and, as it were, paralytic. Rigidity of the ligaments of the articulations also takes place, and where contraction of the limbs exists, this may become fixed, productive of permanent deformity. Now, with a view to the prevention, or removal of this series of disasters, exercise, in conjunction with the other means proposed, particularly frictions and *chambooing*, should never be neglected. It may be painful at first—though, if there be no inflammation, this is not to be regarded. On each repetition it will be less, and soon no suffering experienced. Yet, should pain be decidedly increased by it, we may infer the continuance of inflammation, and an opposite course is to be adopted, or a state of rest.

Every measure, however, which I have proposed for the cure of chronic rheumatism, though skilfully applied, will sometimes prove unavailing,—and, as a *dernier resort*, a trial of the thermal springs of our country should be suggested,—the best of which are those of Virginia,—from which the most extraordinary advantage has, in many instances, been derived. I have seen individuals again and again, crippled and deformed, to return from them perfectly cured, and which corresponds very much with the reports we have of the efficacy of similar waters in Europe. My remarks, hitherto, have had reference to the varieties of the external form of the disease. Deeply interesting as are the affections

of some of the internal organs, they are so similar in their management to those of gout, already disposed of, that I must be content to refer to what I have said under the latter head, with the single exception of the attacks of the heart, which, from their peculiar importance, claim a distinct consideration, and this they have elsewhere received.

As rheumatism, in all its diversities, is singularly prone to relapses, to prevent these becomes a matter of consequence. Cold is the most operative of the exciting causes, a protection against which should be secured by wearing adequate and appropriate clothing, such as flannel over the body and extremities. Yet, owing to idiosyncrasy of constitution, by the entire rejection of flannel, I have known several individuals much afflicted with the disease, and having the liveliest predisposition to it, perfectly cured. For the same end, the habitual use of the cold bath, where it agrees with the patient, is often effectual. The Yellow Springs, in the neighbourhood of this city, the water of which is intensely cold, have justly acquired much repute in this case.

Of diet I have only to observe, that though it should be more nutritious than in the acute disease, it is still to be moderate in quantity and quality. No case admits of any freedom of indulgence, either in eating or drinking, it having, on the contrary, invariably the effect of augmenting pain, and exasperating the disease generally. Cordial, and even stimulating condiments, such as Cayenne pepper, mustard and horseradish, are, however, very grateful adjuncts to some kinds of food, and in weakness of the stomach become proper. The two last articles, indeed, are thought to exert some remedial power over the disease itself, and I am inclined to believe really possess it, in certain atonic states. It is under like circumstances, that a small portion of wine or ardent spirits may be allowed, though usually they are very prejudicial.

Finally, certain positions, exposed to a chilly, moist air, as along the seacoast, abound in rheumatism, particularly of the heart, and which, once established, is uniformly difficult of cure, and, in many instances, utterly irremediable, except by a removal beyond its influence. He, indeed, who is prone to any of the forms of this disease, will act wisely in selecting for his permanent residence, a climate dry, warm, and equable.

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